













GAMES FOR THE ZXEL VIL TANDY ESE AND MANY MORE



DECEMBER 1982 No. 14

News & Reviews

GAMES NEWS GARVES NEWS
After Med Max II prepare yourself to meet Mad Maxths, the bare of henpecked hunbands everywhere A
domestic adventure? Well hardly Fren
by Instance a fractic chase between a

ARCADE ACTION Meet Donkey Kong Junior a Sectio chap off the old bipok, with a rescue massion to besforts. Find out about the night mare creatures which inhabit Mongtar Bash, And improve your Gorf play REVIEWS funting Pink Elsehavor



You can tell it a almost Christmas. Even the above are getting into the festive spurft and seeking out exciting new gifts. Trouble is these "gifts" are space pods and they belong to Apple owners Can you stop the ahens getting their tentacles on them? ALIEN CHASE

Catch those runaway abens on your BEC model S, But you will have to be muck. These little green men are pretty nippy!

Too many sheet so far? Well this game will bring you back to earth Its eversion of that popular dice game, Yahizee, written specially for the ZX81 with all the challenges of the real thing built in.

SPACE ROLLER Different - that's the word for this Spectrum spectacular. It involves a

Will Granny find someone to help her across the road? Will she avoid a ducking on the wey to the post office? Will she collect her pension? All these questions and more will be answered by Pet owners.

You thought Hunganan Squares was difficult. Well if was nothing compared to this brain-twister for the YI 99/4s. It's got colourful rings of confusion just to ballle you...

Can you accept from a nuclear reactor about to go critical? Falliale devices are scaling off the building rapidly and you must find the quickest way our — as one door shuts another opens in this race

against time the Atari 400/800

Definitely not a game to be played between meals. Murch your way

Sandas at 12 o'clock shapper, and they are coming out of the sun! It's chocks away for an exciting version of this arcade game for the around a maze but keep your wits about you.

Edites Terry Profit Staff Waters Copens Lacry Editorial assistant Scott Catterent, Designer Lanta Presents Profestion editor Two Mercalis



Bright Sparks .

already sating their wey into the prime commarcial TV time slots in anticipation of e bleeping burning human Christman

From radio-controlled wonder cars to an abundance of samesplaying time pieces, we take e bayers' look at how to enmout h this booming market. What to watch out for, what prices you should shop around to get and some of the best buys in each

category. Read it befare you plan your stocking fills rs this Christman. It starts on page 85.

Also included in our Christ mas Stocking section is a rundown of the chess machines You could buy this Christmas. How they compare with each-other and with the chess programs you could buy for e home com putez.



MAILBAG Problems solved or

What wets our Program of the Year Competition? Find out on this page. 27 CHESS Yearh your computer end game exper

It's Cornetmes and something swini lurks under the fairy lights THE SEVENTH

A compensor cometh in February So strange, so unique, it is taking as three somes to tell you about it. This month

Kesth Campbell's a brave man, Sea ventured back into The Assture

Taking liberties on the Go board.

PROGRAMMING The last in the series. Ted Ball plans for

85 to droose an electrorise game or try that Ourstman Plus chees machines and a look at TV daines centres

Advertisement instançue Eta Lowie Savertising overality Nell Wood Savertisement assistant Louis Floridary, Paklinker Ton: Molongy Editorial and advertisement offices: Durrant House, S. Herbal McL. London EULA NS. Telephone Editorial St 270 8305, Advertising S1-878 5852

CONFINITA NO VEGO GAMES NOVAE EXCENTENCE EXCENT ON EXCENT IN view to special front interview in more, resemble of CRESSIVE ADD VEGO DATES are to require the confining and more to a residence or and the confining and the confined and the con

General Subst Thompson, Next larger December 18th



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BBC MICRO











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TONIC FOR THE TROOPS

I am at present serving in the Falkland Islands, working out

of Port Stanley. We are trying to get a computer club started in the evenings to try and chrunate some of the boredom of off-

daty hours. At present we have limited facilities - 3 7X81 Sinclair computers and no recognised instructors. Could I therefore ask you

for some back assues of your magazine to assist us with our club, plus any other miornstion/leads that may be of use to us?

S/Sat Brown 30 FD SON R.E. REPO 666

Editor's reply: Those beck numbers are at this moment winging their wey to you SSGT Brown. We hope they'll be useful in setting up your club.

ADVENTURER NEEDS HELP!

I would like you to print this letter because if so it will hopefully - provide me with an answer to a question that has been niggling me for months. It concerns the game Ulysses and the Golden Fleece produced by On-Line

So far, for three frustrating months I have been plodding around the opening scenario without proceeding on to the second stege. I have med everything, wandered round the forest for the day, pounding the shopkseper with questions, threatening the guards with death mme! --- and still have not got

into see the King. So please, please, I beg. any Apple owner out there with the game and who have passed the first stage, please write into Computer and Video Games as soon as possible. Thank you! I wait nagerly.

Keep the Apple games commo - imphotep and Alten Lemminus were trafferve Michael Tallent Langport. Somerset

BOMBED OUT BOMBERI

I have just received the September issue of Computer and Virley Games and I have typed into my 32K Atan 800 the program called Bomber only to find that it did not run. The program has been written or converted in such a way that it will only run on

a 16K Atan. I have converted it so it will run on any memory size Atan. First add lines. 0 GRAPHICS 0 :REM CLEAR

8 DL = PEEK(560) + 256*PEEK(561) :REM (Find number of top left screen location. This varies with different sizes of memory).

Then change lines 10, 70, 80, 130, 190, 250, 310, 440, 450, 500, 560, 630, 690, 910 and

In these lines you will find the numbers, 15745, 15764, 15923, 15943, 15965, 15983, 16003, 16183, 16205, Chance these numbers to: 16745 TO DL+353, 15764 TO DL+372, 15923 TO DL+531, 15943 TO DL+551, 15965 TO DL+573 15983 TO DL+591, 16003 TO DL+811, 18183 TO DL+791, 16205 TO DL+813.

G. A Ferguson, Darlington, County Durham

POKEING THE TRS-80 . . .

Here are some police for the TRS-80. I found them in the Basic Programmers Notebook by Earl R. Savage. POKE 16396.23 -- disables break key. POKE 16396.201 --- enables break kev.

POKE 16396,165 — replaces break with shift break Bypase 1 for printer. 10 POKE 16422 67 POKE Jane 10 causes the TRS-80 to automatically bypass all the

statements which address the printer. Bypans 2 for printer 20 POKE 16414 141-POKE 16415.5. Line 100 is the screen bypass

Ime 200 resets line 100 200 POKE 16414, 88:POKE The book has many more tricks' for the TRS-80, 1 recommend it.

Simil Pareich. Eccles. Manchester

PLEASE, LET'S STAY SHARP

I have become rather disturbed of late by what seems to me to be a running down of interest in the Sharp MZ-80K both in advertising and articles on this splendid

You have feetured the MZ-80K in the Hardcore section.

but really thus is preaching to the converted and : of no use to someone who is already an owner

I wonder it any of your readers would be able to supply games converted from another format? I am particularly interested in the 747 Simulator, which is only available for TRS-80 - Genie OWNERS

In conclusion, I realise that you cannot provide listings for every machine every month, but it does seem that a lot of space is taken up with new machines i.e. Spectrum and BBC etc and no doubt we will be flooded with Oragion articles, Please remember that there are specific macs for these machines, and people such as myself depend on you, in the absence of a Sharp Users magazine. I. D. Carson. Lurgan,

Editor's reply: You are in luck Mr Carson, a letter came into our office the other day from a group of people who are considering starting up e Sharp users magazine. The subscription rate would be between £4 to £6 and the magazine would be hi-monthly. The person to contact is Mr I. P. Griffiths, 104 Weterloo

Co. Artmath

Road, Southport, Merseyside. And may we respectfully remind you that some of the best games we have published - for instance World Cup Manager - have been written for the Sharp.



For the SPECTRUM Morral Easy Programming for the ZX Spectrum Computer Puzzles. For Spectrum & ZX81 Machine Code and Better Basic Cassatte: Spectrum Special 1 Games to Play on your ZX Spectrum For the ZX 81 PEEK, POKE, BYTE & RAM: Basic Programming for the ZX81 £4.96 Computer Puzzles: For Spectrum & ZX81 €2.50 Machine Code and Better Rasic €7.50 By Martin Wren-Hilton The ZX81 Add-on Book Order the complete hamper and save yourself a packet! Or make up your own with any 3 stems for £10.50 (Incl. p. & p.) Offer open until 31st January 1983 All books and cassettes are also available individually at the normal published prices. Ist December onwards ORDER FORM lease send me a SPECTHUM hamper, at £15 75 NAME. Please send me a ZX81 hamper, at £14,75 ADDRESS I wish to make up my own hamper with the following, at £10.50 I anclose a chaqua tor £... Plass dabit my Access/Garclaycard/American Express I wish to order 1 or 2 items only, at the normal Shiva Publishing Limited 4 Church Lane, Nantwich, Cheshire CW5 5RQ Telephone: (0270) 628272

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MAILBAG



RATTLE AND ROLL!

Dear Sir,
A simple technique for
gamesters and their ZX81'a—
edd to the effect of an
explosion to produce results
simular to an earthquako
mension of TV— the jolted

camera shot — get it?

By POKEing location 18424 you can cause the picture to judder in an alarming way — the higher the value the more alarming it gets — my procram demonstrates this.

\$ 90KE 16424.N 40 POKE 16424, (50 — N) 50 NEXT N 60 GOTO 10 D Beighton,

CHARACTER PROBLEMS

Reading.

Dear Rr,
Could you please tell me how
you get lower case
characters printed on the
television screen using a Vic20, 1 have tined desperately
but to no avail.
Also Clarkoon,
Warrington,
Chebbre.

Editor's reply: All you have to do Alan is press the SHIFT key and the key with the Commodore symbol on it—you'll find that at the bottom left-hand corner of your Vic keyboard — at the same time. These you'll find both upper and lower case character ers swallable.

MISLEADING MEMORIES

Dars Ser. I say of your carrespondents or saff have been skulvin ymsled, as I was, by some advertisements for infercomplers, as far as the available RAM is concerned. I purchased my Atom as much for its expansion possibilities as anything pise, but I also felt that ZK of RAM was a fairly

generous offering for statters.

I soon discovered that IK of that RAM is in zero page and dedicated to the operating system, except for a few odd bytes. Another IK leaving past IK for program tood Even with the Atom's fairly compact abbreviations fitting a reasonable game into S12 bytes is pather instituting. I now have a full expansion, for the lower text space, but

I now have a full expansion for the lower text space, but for several months the frequent appearance of ERROR 268 was a cause of making of testh!

1 worder, when I see adverted for some of the latest machines, such as the Spectrum (48K) or the Dragon (32K), past how much of that RAM is attractly available to

RAM is directly available to the user for program text. Perhaps your Bardcore article could publish a comparative table sometime Richard Gledhill, Bioester, Oxforchure



THE MICRO CONFLICT . .

Dear Sir, I felt I just had to write to you and your fantastic macazine, and have a short say in the ZX Spectrum versus the BBC model A confact.

As far as I am concerned, the Spectrum is one of the greatest achievements in the computing unitary. If I were to give you shout \$250 and also the choice of buying a BBC model A micro at \$250 or at 46K Spectrum, costing a mere \$1176, a ZX microdrive at \$500, a ZX printer at \$50, and RSS28 at only \$20 and if you wanted a proper keyboard et about \$40, which would you take?

I think the choice is obvious and I know that if I

had £300 to spand on any computer, the Spectrum would be first on my list. Finally, it is my belief that Sinclair make the world's best computers, and ITV

best computers, and ITV
make the world's best
televation programmes!
I would be grateful if you
would publish this letter with
the hope of clearing a few
munds of the endless quabile

I would be grateful by would publish this letter with the hope of clearing a few minds of the endless quibble between the Spectrum and BBC computers.

Alan McAuley,
Carneklergus,
Co. Antum.

VIDEO FAN SPEAKS OUT

Dear Sir, Since finding your magazine in my local W. H. Smiths back in November last year, f have been buying it regularly every month.

Computer and Video
Games fills a unique spot
amongst all the computerrelated magazines, dealing
more with the fun aide of
computers, than borning us
with the latest technical guilt,
which most of the others do.

which most of the others do.
I don't in fact own =
computer as such, but am the
proud owner of an Atan,
VCS, and find your Video
Screens reviews very
unteresting

One request, low about doing a complete run down on the Aian VCS7, as I feel sure there are many VCS owners who don't really know much about the hatory or technical side of the VCS and would like to. Mark Gentry, Ipswich, Suffile.

SPECTRUM SPECIFICS

Having read a lot about the Spectrum several questions still remain in my mind. Does the screen still flash when the 'Pause' command is

When saving and loading a program is the screen display retained or does it behave in the same way as that of the ZX61?

On Sinclair's order form both a "User-defineable character set and "Userdefineable graphic characters" are mentioned.

What is the difference?
When a sound is generated does the program stop untl the sound has finished? And finally is it possible to set up files on cassette?

Jason Orbaim,

Editor's Reply: No Jason, the screen does not flash when the Peuse command is used. The screen contents and to state the screen contents and to state the screen contents and to state the screen contents are stated to the screen contents and to state the screen contents are screen the "characters" mentioned in Sinclar's publicity. A program does not stop when sound is used, but it will stow allowity, and yee, it is

REVIEWERS REVIEWED Dear Str.

I have just received my Dragon 32 computer and would like to offer my services for reviewing games for this machine Paul Whitby,

Gloucester. Editor's reply: We are still about of reviewere for the Dragon 32 and Texas 98'4h computers. If there's anyons out there who has a printer with their computer please write to as

IT'S DRIVING YOU WILD

Dear Str., I noticed in your November usuae that some people were having difficulty with Wild Strawbornes. If they are trying to load it from disc they will expenence some problems as some of the POEE commands discript the game.

The lines to be changed are: 88 where POEE 1940 + A should read POEE 38812 + A. The same change should be made for her 70. 75 should be changed to make POEE 19464 + A read POEE 29810 + A. 100 should be changed to make POEE 19464 + A read POEE 1956, 07 read POEE 756, 152. Philip Sedler, Acton,



COMPETITION COMPETITION COMPETI

GAME OF THE

Those ravenous little devils, the Nibblers, which appeared in the very first assue of Computer & Video Games, have finally done some aroad

They have won their inventor. Paul lay, a top to Paris for two. complete with spending money. courtesy of Computer & Video

Games. After careful consideration and much heart-searching by our panel of judges. Paul's Nibblers was voted the winner of our first Games Pro-

gram of the Year competition. Nibblers won because it was a simple but original idea, which included different levels of difficulty. sound and graphics, It ran smoothly and proved easy to key in but compulsive to play.

So congratulations to Paul and commiserations to all those of you who held out high hopes of Paris in the Autumn.

And for those of you who have not yet had a chance to meet The Nibblers, we will be printing a Vic-20 listing we received which was

converted from Paul's game. Congratulations to all you masterminds out there who solved our first Puzzling challenge from the Novemher were

But judging from the many phonecalls we received about Puzzle C we may have been too clever. We changed one of the pages m Puzzle C to make it impossible and this obviously confused some of you, but most managed to come up

with the right answer The correct solutions were reading from the bottom of the page

11177 A) Red Red Yellow Yellow B) White, Green, Black, Red. C) Impossible.

D) Red, White, White, Black The three winners will be

announced next month.

The Seventh Empire is a unique game and competition which will be starting in C&VG's February issue. It is a computer moderated game specially designed for C&VG by Mike Singleton.

Every player will control one of the galaxy's many tribes with seven space fleets to despatch around the star systems taking part in the empire battles for a share in the spoils, mutating your own raids and acts of paracy.

It will accommodate from 1 to 10,000 players with a winner being the player with the most points scored each month. Top scorer in the first month's game will win a Colour Genie Computer.

The first 1,000 readers we hear from will enter free, the rest will be asked to pay a token 50p charge but after that first turn. Seven Empires will only cost you a stamp every

month

Fill in the form below and rush it to: The Seventh Empire. Computer & Video Games, R. Herbal Hill, London ECIR SIB. Although you can enter the game any time, you will need to be on our records before the February issue goes to press in order to enter that first month. See page 72 for the background to the game, the rules come next month.

Please include me in The Seventh Empire competition which will run in your Fabru-The name of the tribe I wish to control is: My name is

Address . . Tel:....

COMPETITION printed in the January issue. So all

Take to the War Path m the new year with wargames author Ron Potkin. Ron was the writer of our April issue star game, Knegspiel, a chance to take your computer's Panzer divisions in a

tank battle scenario War Path has a Wild West theme which gives the Indians every chance to reverse history. It also maps out Ron's unique Big Screen approach to computer war-gaming.

Instead of printing out the listing for one machine. Ron will be taking you through each part of the program, month by month, explaining how the Big Screen technique works and showing how it can be utilised on many different computers.

War Path kucks off our new year and provides some marvellous lessons in making the most of computer memory and TV screens.

The Seventh Empire rules are

you budding fleet commanders should pick up a copy to find out how to partake in galactic warfare. make piracy work for you and playoff one warring empire against another.

The latest news from the C&VG spesist Starweb game comes from one ol the more threatening of the golac-tic races, the dreeded Gzinti berser-

Kers.
Mark Woolwich who has been fol-lowing the growth of the Gzintl ompire closely managed to infercept the following transmission on its way to their home world of Gzin.

The rate of expansion mentioned in previous reports has slowed greatly due to conflicts with other races on the thrice removed frontiers The powerful and hostile Pirate 1

is being kept out of Gzinti territory. His scout fleets are detroyed by our border fleets who are taking minimal damage.

Artifact Collector 1 has proved to

be non-hostile and information received from him concerning Pirate 2 has resulted in our strengthening of the border between Gzin and Pirate 2. Furthermore a large force has been mobilized with the intent of destroying Pirate 2.

Artifact Collector 2, after being initially hostile, has retreated, as large force is pursuing him with the aum of neutralizing his threat. A time and labour-consuming job, but vital to ensure continued expansion and replacement of lost ships.

The fleet drawn into the black hole has remained silent and must be considered lost. However, the black hole provides a barrier to attack from regions beyond it.

The prime directive is never forgotten, non-robot population is destroyed wherever ships can be spared, though the needs for our survival and supremacy often conflict with it. End of report.

The Gzinti Fleet Controller



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screen graphic game. With your deadly Anomat torpedoes, you unleash havor in the Federation. spacelanes and try to dive back to the safety of subspace, fast ZX81 E5 50, VIC20 E9 50, 16K STAROUEST A voyage of discovery and

adventure in the cosmos. With the help of your onboard computer, you seek a habitable planet amidst the perlis of deep space 2X81 E5 50, VIC20 E9 SO 16K ENCOUNTER Would you know what to do If

you encountered extra-terrestial beings? In this adventure, you are snatched off the Earth and the space invaders play YOUI ZX81 ES 50 VIC20 E9 50 16K ZOR Battle of the robots Fight for survival in this

action-packed strategy game. Megajoules of destructive energy in a futuristic duel, ZX81 E5 S0, VIC20, E9 S0, 16K

PIXEL POWER At last it is easy to create your own custom characters on the BK plus expanded VIC20 A graphics workshop packed with useful features like Create, Amend, Save, View Set, E9 50. Refreshes the pixels that other programmes can't reach. (See Pixel Power in action in Trader and Subspace Striker)

HARVESTER Reapyour reward in the Boosterspice fields around the planet Delta. A cutthroat strategy game for 2 to 4 players for the unexpanded VIC20 £4.50

BRAINSTORM The telepathic emissions of the friendly Psions can wreck a human brain. Can you get our three space explorers across a river of nasty goo without blowing their minds. Unexpanded VIC20 £4 SO.

GUITARPIX 1 For the VIC20 owner who wants to play the guitar. The first of a series that shows how to tune the guitar and demonstrates some elementary chords Unexpanded VIC20 £4 50

Send SAF for more details

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Shoot fast to stay elive in this new Vic game from Audiopenic The game is obteinable from the Reading-based turn et £7.99.

Another new space theme geme from Audiogenic this month is Satsilites and

Meteorites. You are the commander of a meteorite destrover ship on a mession to neutreline a storm of meteorites that are threatening

your plenet. The only way to destroy the gient rocks is to blast them with your lasers - dodging the ones you cennot get in your sights. Your mission is made more

difficult by a equadron of enemy setellites which fly in after the metenritos If you survive the meteorites and the satellites you must then

avoid the black hole to complete your mission. Satellites and Meteorites is a cartridge geme and plags into the beck of your Vic Available at

THE HAPPY **EATER IS** TILL BITING

GOBBLEMAN

obbleman, Munchman, Mun-& chyman, Snapper - even Munch 'n' Crunch Come on guys - let's have some more onginal nemes for Pecmen style gemes! Better still let's have some original and exciting new games.



Meanwhile, back in the maze. the ghosts and the little yellow disk with the insatiable appetite ere running around the circuits of the Sincleir Spectrum, Gobblaman is fauly close to the ercede. version although it does not feeture the cage at the centre of the ma 22

The game is the letest edd-tion to the Arisc computing range of gemes for the Spectrum. It is available from the Hull-besed

The range also includes a high resolution grephics version of Space Inveders at £495 and a Chess tope with seven levels of play at £9.95 All games will run on the 16K or 48K Spectrum

THEY CAME FROM THE ARCADES . . .

ARCADIANS

we new games based closely on escade money-soloners Asteroids and Galaxians are the latest offennos from Acornsoft for the BBC Model B

clone - looks elmost identical to Bustol-based New Generation the arcada version and, if its enything like Acomsoft Detender it will play as well as the arcade version fon The Asteroids type game is

celled Meteors and eggin is a close copy of the ercede version with the added improvement of colour

The games are available from Cambridge-based Acornsoft et

AXE MAN MEETS THE MONSTERS **ESCAPE**

Escape is the name of the gemein a 3D maze full of onehistoric mons

In ordar to escape from the maze you must first find an exe that is hidden somewhere in the meze You need this to get through the

blue door to finedom.

The monsters track you at hell your speed until you find the exe. This heavy weapon slows you down considerably and you may need to drop it in order to make a quick get away before you get

through the blue door There are live different skill levels in this game—thesa change the number of monsters chasing VPu It is also possible to siter the speed of the monsters

Escade runs on a 16K Sinclair Arcadians - the Galaxians Spectrum and is available from Software at £4.95

THE GAME DF MANY WORDS . . .

SCRABBLE

Screbble fens will welcome this computersed version of the populer word-making board game The game is exectly like the board game except you must pit your wits against the computer. There are lonr skill levels — from easy to downright impossible and

the computer keeps the score. Scrabble runs off a disc tor the 48K Apple and costs £24.95 from

Landon-based Little George **CHAMP OR** CHUMP DN THE TRACK?

CARS

ing the thills and spills of the grand pex track to the keyboard ot your Sharp MZ-80K You could become a world champ in Cars, the Istest racing

game for this computer Nine gears help you to accelerate around the twists and turns of the race track.

But its not only ecceleration you'll need if you want to pop the champagne at the end of this rece though You must have quick reactions to stear in and out of all the other racers.

Cars is the latest game from Sharpsoft for the MZ-80K. It is available at £5.00 from the London-besed company



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HFN-PFCKFD HERO IS ON THE RUN!

MAD MARTHA

Poor little Henry is the hen pecked hero of this domestro tale

One night Henry can take no more He steals his wagas from his wife's ourse someks out of the house being careful not to wake the baby or trip over the cat, and heads for the birght lights to have some fun. Trouble is he runs out of

money His only way to reise some cash is to gamble his few rememing pounds on the spinning wheel of the roulette table Just us Henry is getting with his evening at the tables his wife

- Mad Mertha - has noticed his absence Realisma Henry has absconded with the housekeepmg she sets ont ofter him with no

Guess what part you play m this happy little tale? Thet's right. you are Henry Wetch out for that

Mad Merthe runs on a Smoleir Sonetrum or ZXR1 in 16K end costs £5 95 Irom Swansen based Seturnsoft

Also new from Seturnsoft this month are two adventure games

for the Spectrum or the ZX81. Mmes of Saturn challenges you to Imd the hedden crystel mines and then escape with the opodies If you succeed, then you are ready for a stiffar chal- from Harrow based Rabit Softlenga - to find your way safely back to planat Earth.

Mmes of Saturn and Return to Earth are avariable from the Swanzes-based firm at £4.95 for the 2X81 versions and £5.95 for the Spectrum - with a pound off field just like the arcade version,

MEANWHILE OUT IN DEEP

OARK SPACE SPACE PHREEKS Souce Phronks challengs you to light them as you journey through space - a lonely

travelier in time, the last survivor of a once proud planet called Forth - now just a cloud of cosmic dust floating in the space winds. Your sonce ship moves right and left across the bottom of the

scinen as assorted alrens swarm towards you - some of them liring missiles as they approach Space Phrenks runs on the

expended Vrc and costs £9.99 Another new game from Rebri this month is a version of the popular arcade game Centr-

pades It features the sorders bentles, bugs, and mushroom You must also be careful of the

'Gobblers' which travel along tha bottom of the screen. Remember you cannot shoot them - you here to dodge them. The gema elso runs on the

expanded Vic and requires joysticks to play Thrs also retails at The third game from Rabit this month is a version of the ercade gama Froggar — again running on the excended Vic at £9.99

IT SHOULON'T HAPPEN TO A **BRICKIE!**

Sweep that had of backs onto your shoulders and set off up the ledder to the next row of scaf-

This is your chance to be a big butch broklayer for the afternoon - Hexing your muscles. sweering like a trooper, and

whistling at the piris

All you have to do is carry the bricks to the next level But watch put, this is no ordinary building site and there are two monsters stelling the scaffoldmo - hungry to get their teath into any passing bunks of beelcake

If you successfully deliver your had of backs and manage to avoid the monsters you go on to a new more difficult level of play This time there are two, and then our, and then six monstars

Franzy runs on a Tandy Model Lend III and on a Video Bonia I and II. The game can be obtained from East Sussex based Molmerx at £9.78 mclusive

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ng to be gunned down. From Apple to IBM you can take pot shots at them all. The game is based on the excede game Asteroids and features the lamiller command ships and hyperspace essociated with this game PS Pesteroids runs on the Ti 93/4a and is the latest game from Stainless Software of Stockport. The game is available at £9.00

Also new from Stainless this month our two adventure names Octal 1 and Keys to the Castle on offer at £9 for both Separstely they cost £4 for Octal 1 and £7 for Keys to the Costle



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NEW PRODUCTS NEW PRODUCTS NEW PRODUC

THIS GAME SLAY YOU!

DRAGON DUEST

Three re your task on a new Adventurn game based on the popular lentasy game Demons and Ora

The game displays text and graphics and challenges you to cain a thousand pornts before you can so on to fevel two The authors of the program ere confidant that level one will keen you occupied for puris some time. So confident to fact that level two is

not yet on as is Dragon Quest runs on a BBC model B and costs £11 50 from the Merseyside acitware house Buo Byte



Also new from Bug Byte this month is a fruit machine game with many of the leatures of the old and of the oler favounte. The pame features spinning wheels with all the fruits and hold and from the Livergool firm

pannies are depreted tumbling from the front of the machine When you get a worning line Fruit Machine runs on a BBC model B and is available at £5.50 **BATTLE TO REACH THE**

Hover above the missiles and bomb the fuel dumns Sounds familiar - yes, you guessed it, it a another version of the arcade wmner - Scramble

This fatest version on the Sinclair Spactrum in 16K or 48X and lealures lour levels of play

First there are the ground-toair missiles, Ipliqued by the spiraling UFOs, and then the fest and furious meleorites.

If you survive this onslaught you can go on to allack the

If you successfully destroy the enemy fortress the game starts again at a new more difficult skill

Scramble is the first Spectrum gama from the Berkshya-based software house -- Mrkro-Gen It costs £5.50 plus 40p postage and

A Final Street style bonanza of cash prize incentives is being offered by some up and commo Automate of Hampshire set

the ball rolling with their Pimania game The game owes a lot to the successful Krt Williams book Masguarade Unlike the inwelled here of

Masquarade the treasure is not burned secretly in the countryside but hidden metaphorically at a certain "time and place The prize for the lucky winner

of Pimann is the Golden Sundral ol Pr, an elaboreta compasa and sundial cralted in cold. dramonds, worth £6,000 Not to be outdone Hull-based

Artro Computing are offering £10,000 plus two tickels to the mystery city where the money is stashed away to the darson who can solve their miernational finance adventure game - Kraket is £10,000 the limit in prize

money so far offered by the software houses? It seams so at the moment - bul whel's that rumour from Automala about a Pimanra runs on a Sinclarr



Spectrum m 48K and on a ZX81 BBC versions will be available with varstons to the pipeline for

for Christmas at £10. the BBC 32K, and Dragon 32K

Krakit also runs on a Spectrum The Spectrum version costs £10 and a ZX81 and is available at and the ZXB1 £8 The Oragon and £9.95 for either version

BEWARE THE DFADLY IMPOSTERS

The Merbans are invading They rely on slealth and sheer numbers to overcome you

Armed only with a force freld you must ettempt to catch them before they land Il you let six of them sirp lhrough your net you will be deleated

Not all the Martiens can be trapped in your force field Destroyers can break through and will kill you if they make contact Imposters lurn into desl'overs al the last moment just as you

are about the trap them Martrans runs on a BBC model A or B and costs £5.95 plus VAT from Leeds based Micropower

Also new from Micropower this month are versions of the populer arcada games Missile Command and Galexiens The games run on the BBC model B and are avariable of £6,95 plus VAT

"We will be flying at a height of 30,000 feet. Our air speed will be 500 knots. And there's a fair chance we're going to crash."





No smoking, Fasten your seat belt. You're about to take off in a 747 But on this flight you're

You could hardly describe THORN FMI's Jumbo Jet Pilot as simply another video game It's more like a session in a llight simulator with life like instrumentation and graphics.



To cope you need to be alert. You should expect the unexpected And you definitely shouldn't lower the undercarriage when your air

On landing your in flight computer will assess your skills and give a 'performance rating'

If you manage to land that is. Jumbo Jet Pilot' is one of 21 challenging new home computer games from THORN EMI It's pretty demanding. But our programs aren't

'River Rescue,' Krakback' and 'Soccer, are all action games 'Pool' and 'Darks will suit.

armchair sportsmen And whilst budding Beethovens play the VIC Music Composer would be Chancellors can Management





We also have educational puzzles for children that will puzzle adults at higher skill levels

we've designed them for players who are bored with run of the-mill TV games Now is that Heathrow ahead?

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TV GAMES CENTRES TV GAMES CENTRES TV GAMES (

CHARMING **FNCOUNTER** WITH E.T.

E.T.

ET, the friendly Kermit the troolike elien who is taking American cinemas by storm will soon be appaaring in a brend new video game for the Atan VCS

The game is still only in the production stage but is expected to be in the shope by Christmes together with a new upgraded beseball name

The him opens in this country in November It is Steven Spielberg's letest blockbuster The 34 year-old director - slm adv e millionaire with auccesses like Jaws, Close Encounters of the Third Kind, and Reiders of the Lost Ark under his belt - has hit on yet another winning formula

E.T. is a friendly alien. He has no plane to colonise the universe, and has no lesers, death etars, or destroyer shipe in tow He befriends a little boy and is carned around in his new Iriand'e cycle basket

The idea of an odd, or friendly. or even helpless alien is not new. But this is the first time it has been given the Juli Hollywood

So what about the geme? We will be publishing a full description and myinw as soon as the information is evailable from Atan - which should be in time for our next issue - watch out



BY THE **OOG CATCHER** CAT TRAX

Cat Trax is the first new Pacman type game I have seen nince any real development of the basic thems In this version you can actual-

ly change the shape of the maze as the game is in progress A sense of getes which can be closed to turn the maze into a single long passage can be

around a maze by three doos. As you travel you nat up the dots which fill the maze until the maze has been rigated

appear at the centre of the maze If you get this you will change t-shirt and the badge, yideo into a dog collecting you which games players will soon be able you drive around the maze in to purchase the same of the film. persuit of the doos which can now be deposited in the kennel to spot this potentially lucrative at the top of the maze. But you pames market with two pames. will have to be quick as you for their intellivision mechine Mattell's Lock 'n' Chese to offer change back into a cat 30

seconds after eaung the bah The game also features a paer in a different part of the Lost Ark and ET

It runs on the Hanimex HMG5000

Escape is the name of the gema in this second new offering from Hanimex this month You are trapped in an electro-

nic maze with biobly charged walls which, if you touch tham, the wells will electrocute you. The aliens are after you. You most shoot them out of the wey before you make a dash for the exit of the muze. There is also a deadly spinning dicky-bow shaped flying saucer which will take off and home in on you at by your figure. Arcade veterans will recognise this as a varsion of the popular video favourite -

The pames are in the strops now at £18

THE GAME OF THE FILM The list of memorabilia on sale in

Beserk

the wake of successful new films Every so often a fish will is becoming quite deunting As well as the book, the record, the Mattell were the first company based on the new Walt Disney

film Tron Aten themselves ere about to warp button which anobles you enter the field with game verto disappear if the dogs are eb signs of Staphan Spielbaro's out to eatch you and then reng. Intest blockbusters Reiders of the

opened and shut to frap the dogs LVE THE DARK SECRET?

One of the darkest secrets of video gaming is the Riddle of the Sphinx

This Atan VCS cartridga from the Imagic range is still to be solved by US gamers and should prove just as difficult for those in the UK

This unique game which combines action with clua gathanno is proving so difficult to beat we lelt the first person to come up with an anewar should be

So in conjunction with Imagic's UK distributors, Hala's Limited, we are putting forward a

RIDDLE OF THE SPHINX prize for the lirst person to dis

the Sphinx. The winner will riceive £185 worth of Imagic goods, courtesy of Hale's Limited. This includes the other six bilas in the range planned for ralease over here Demon Attack, the top selling Trickshot, Atlantis, Star Voyagar, Cosmic Arc and Fire Fighter Plus a storage container for the Atari games centra and all its attendark wirse which erganises and

15 cartndges

Reviewed in our November cover the secret of the Reddle of Issue, Riddle of the Sphinx, sets you down in the Valley of Kings. among the pyramids, palm trees and temples of the desert, charged with the mission of collecting pricaless trassures and

> Il you solve the Riddle of the Sphirox, send a photograph of the screen to Imagic Compatition, Computer & Video Games, Burrant House, 8, Herbal Hill, London

artilacts

If you think you are getting



closs, then send us a letter to tell us of year discovenes so lar Good luck and may your camal's hool navar descend upon the acorpion's tail

CENTRES TV GAMES CENTRES TV GAMES CENTRES

WORDS OF WISDOM FROM A

Does the game sound good? This is soon to become as important a consideration as playability and

what a game looks like Leading the field in talking namas so far ara Mattal with two gamas for their Intellivision

B17 Bomber takes you on a bombing Inc over Barlin Ores. den, and Hamburg

machina

it's 1943 - a critical period in World War II. Your mission is to destroy the Garman war mechine. by knocking out tectorias, refinenes, warships, airstrips, and anti aircraft batterias

The targets are not sitting ducks. You must avoid the barrang of flak exploding around you

TALKING GAMES

and what's that the prior just shouted?

"Bandits at 12 o'clock" You are now the onener. The survivel of the plane depends on your ability to blast away with tha machine gun around and take ont those Masserschmitts that are screaming down towards the

greet hulking target of the B17 Al the slart of the game you pick your targets on a map of Wastern Europe which appears on the screen Extra points are ewarded for successfully bombing a target further from basa.

But this is no place for the adventurer All missions have to by the star base computer when

fly the plane, fire the guns, drop bombs, and do all the navigation with a constant eye on the altiturle fuel speed course and the supply of bombs left.

The second talking game so ler aveilable from Mattel and leatuning their voice syntheaser is Space Spartans

You ere at the cockort of a Starfighter, Your compularisad flight information controls talk to you as you prapare for hattle The ship's computer reports

on the states of all ship systems The Central Computer reports on the energy level and the number of aliens. An alert is sounded

made to climb up and down the

ladder and jumps ovar the rolling

logs and other obstacles by de

pressing the his button on the

Successful Pitfall playars -

Pitfall Herry runs on an Atan

VCS and is the letest game in the

late December end Jenuery at

arcade geme Donkey Kong.

Harry's Explorers Club

the aliens atteck your starbases. The alian commander talls you when the battle is over

Mattel are developing more talking gemas. It has to be eard however, thet the games are not cheap, Space Spartana, and B17 Bomber for example cost £29.95

The games require the Intellivoice sound synthasiser modula This plugs into the Intelligion centra's games socket. The modula is in the shoos now at 650

STOP THE SHITCASE SHAMBI ES

LOST LUGGAGE

ravolving baggage dispanser as you - the unfortunate portar.

struggle to pick tham up. At the beginning of the game The bags start coming faster Harry drops oul of the trees and and lester as you move the porcan be made to run left or right ter night. laft and up and down with the joyslick. He can elso be with the joystick.

Loat Luggage is basically a catching geme based on the popular intallivision game Kaboom where the pleyer had to

joystick - just as in the popular catch bombs In this game it's not explosions you get if you make a bad calch dehned by the gamas manutacbut a rad face as the contents of turers as 20,000 and over - will the bags spill out on the floot of be invited to ipin the Pittall the emport terminal

The more you catch the more you score The game requires speed and managuvrability to Activision range available from score really highly. Lost luggage is the latest addition to the Applia range of games for the Aten VCS

THE JUNGLE SOMETI

Pitfall Harry is the Tarzan of vidao games.

Ha is also your companion in a panions journey through the jungla in search of fragsure.

Harry's advantures include SWITGING OVER STRAIMS OF POPES hopping across a crocodila-infeelad river using the crocs' haads as stapping stones, evoiding avalanches of loos and sud-

dan swamps.

Among the other deadly founa ara anakas and scorpions which Video Games will be a top ten

chart featuring the best selling

The figures come from retail outlets rather than distributers

end the ones printed below fee-

the previous month

PITFALL HARRY

lia in west among the jungla follage

The screen shows a picture of the jungle with a dense covering of trass At ground level is Harry. jumping logs and whatever other obstaclas era in the game at any given time and below him an

Underground passage is connacted to amund level by a lan-

HERE'S OUR NEW TOP TEN. A new faalure of Computer & Mettel's new leunches dunna

that month have all sold well and essured that machina lilling three of the top five positions TV games centre cartndoes over Atari's Defender takes the top

We will be checking on the best selling carttidges every

ture the best selling certridges month from now on ovar the whole range of MACHINE machines for the month of MANUFACTURER Atari VCS Saptember Intellivision CARTRIDGE Atarl Intellivision Defender Mettel Lock and Chase Intellivision Mettel Atari VCS Mattel Ateri VCS Utopia Night Stalker Activision Intellivision Star Master Atari Intellivision Mattel Pacman Intellivision Sub Hunt Mattel Atari VCS B17 Bomber Mattel Space Hunt Imegi Trickshot



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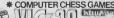
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PHESS

B B

Endgame is the part of chess where precision is most important — one stip here can throw away the benefits of hard-won advantages and victories secured in the middle

Computers generally play endgames badly and yet it is endgame play which is widely believed to be the best mark of a good human player.

A well known example of King and Pawn against King (KPK) is in figure 1. White's only winning move is K-QB2, not K-Q2 or K-KZ. Yet to discover they have

discover this by searching involves looking ahead 27 ply.

If KPK is so difficult, it is hardly likely that a program would find the best move in a complicated end-game such as, King, Rook and two Pawns against King, Rook and three Pawns, How Can the grandmasters'

An obvious approach is to turn to textbooks such as Basic Chess Endings by Reuben Fine.

To a precise reader, textbooks turn out to be full of errors, ambiguities and obscurities. The rules of the rul

fact that textbooks are genumely useful to the reader and in the case of endgames such as EVF seem to show how to play almost perfectly. A possible oxplanation is that chess players have some "internal model" in terms of which a piece of advice such as, "develop Knights

advice such as, "develop Knights before Bishops" can be interpreted without its meaning being precisely specified.

For instance, "Knights before

For instance, "Knights before Bishops" is subordinate to "Do not lose your Queen for nothing" and this is considered too obvious to be worth stating.

Finding all such hidden exceptions to rules as difficult for the programmer but sample for the textbook reader to do. Often there is a conflict of objections. How does advance the Paym' rate relative to 'ake the opposition with your King'? People seem to resolve such conflicts without even noticing them. The ort of chess playing is often sacrificed on the alter of chess programming.

The usual way of writing chess

rine usual way of writing chess programs is based on generating hugo trees of variations and assigning oach position e fairly crude numerical valua. This is garred to whol computars can do well rather than the special difficulties of the game itsait.

Human players do nol analyse lens of thousands of variations as tore moking a move. At I showed fast menth, grandmasters do not not much a grandmasters do not not not much more than ordinory merials, but they are much better at recognising leatures of a position which supper good moves.

Conventional chess programs

Convoidend ches program laws adhieved aeminiage success in recourt years, but to odenace to proafmaster level may require building in expert throwledge as wall prome (A.1) successful and the voted canadrenable either in the last two years to design the provided canadrenable either in the last two years to design the provided canadrenable either in the last two years to design the last promotion of the prowided superior to the prosent of the proparation of the propar

One of the most important skills which humans exhibit is the ability to generalise from specific examples to a large number of equivalent positions while also recognising exceptions.

In figure 2, Winte's only winning more is E-N4. Owing this informamore is E-N4. Owing this information to a human player immediately
made in the prest deal of other
information in great deal of other
information in great deal of other
information in the present
moved to the left or the part or up
or down the board or the part or
moved (Ring one square) or
move (Ring one square) or
major well all be right (you might
like to check whether this is really
true).

And with the White King on N4 and the Pawn on B2 initially, the move P-B3 is also correct, since it transposes to the same winning position. K-N4 would still be the correct first move, even if White's King were on R3 or R4 instead of N3 in flows 2.

There are clearly many different situations represented by the one iditarions represented by the cone iditarions represented charged and the chees player can make this generalisation cashy while approach and the White King were on QB4 in Figure 2, K-14 would observe the Correct move. Playing K QS then gives a position which is more about the proposition of the proposition of the proposition of the control of

Given an endgame programming anvironment, which allowed one example position to stand for many, where unspoken objectives (such as "aved losing material") were automatically included and promites among goals were easily specified, it might indeed be possible to program the endgame by giving interiore than the examples from a teathook.

This sort of approach has bean tried in different forms several times in the last few years. As an example of what benefits may be gamed, it times out that to program KPK for the stronger ade to win in every wimshle position requires only the specifying of 20 simple patterns, plus a suitable "environment", nor the 38 ply search needed by a conventional approach.





Music Composer





Intro to BASIC 1







3.7 million reasons why the Atari Home screen used with our computers is composed of 192 horizontal lines, each containing 320 dots. Delivering colour and luminosity instructions to each dot for a second requires 3.7 million cycles...a lot of work for the normal 6502 processor.

That's why the Atari computer has equipped its 6502 with its own electronic assistant. It's called ANTIC, and it handles all the display work, leaving the 6502 free to handle the rest. What this means to you is uncompromisingly spectacular display capabilities without loss of computer power needed to carry out the demands of your

That's a quality you just don't find in ordinary home computers. And it's one of the Atari computers are so far ahead of their time.

There's more...which is what you'd expect from Atari Language. The Atari Home Computer uses several programming languages to give the user maximum control of its extraordinary capabilities, PILOT Microsoft BASIC and Atari BASIC are understood and spoken by the Atari computer. You'll also find our Assembler Editor cartridge indispensable for machine language

Sound. An Ataricomputer has four sound generators, or voices, activated by a senarate microchip. This leaves the principal microprocessor chips free to perform other tasks And you can take full advantage of this capa bility which is designed for easy programming.

Change. Atari Home Computers have been designed to make change and expansion easy. The Atari computer has a modular operating system that can be easily replaced as new technology develops. If you need it, memory expansion requires no more than inserting additional RAM modules.* And the Atari ROM cartridge system also makes it easy to change languages. In short, your Atari computer won't become obsolete by future developments...because it already

incorporates the future. Sharing. To learn more about the amazing capabilities of Atari Home Computers, either visit your local dealer or fill in the coupon below.

THE GRAPHIC DIFFERENCE BETWI ATARI COMPUTERS AND ALL THE





Gorf pleasants the player with five mini-games. The combination offers variety, but also makes the game tough since each portion has its own strategy. The game also backs out an insult at the player when he loses a man

The first mission you lead is Astro Bettle Invaders are dropped into place, they then begin moving and shooting.

When the Astro Battle invaders are being dropped into place, they cannot move or shoot. Kill as many as possible since you don't have to warry about moving teleats or enemy file.

Pay little attention to the sheald. It will let your shot through end block enemy shots. But if you depend on the sheald, you may be unpleasantly sur-

prised
As in Eliminator, a shot in Gorf
will disappear if another one is
fired. If you see a shot is going to
hit is target, a void the urge to line
another. But if a shot is a clear

miss, his egain right away, in Lessi Battle, you must deal with two leser comons protected by escorts. The cannons fire beams that extend from thair ship to the bottom adja of the scream forcing the player to avoid two abots at a time.

The least cannons are the main threat. You should try to whose them out serfy in the round. Don't get trapped between two shots Also, watch out for the less shot of a dying cannon. Even after the cannon is gone, this shot will be lethal.

Avoid being drawn into can-

The Gort tips ers enten from a chapter devoted to the game in a new US publication, Guide to the Video Arcade-Games.

Twenty games lare included with a description of the size and tips are how to

Twenty games are in cluded with a description of the play and tips on how the achieve a good score. The tips are generally arread the beginner and more advanced players will have already progressed beyon the beater power to be to

The book is written by two young American gamers, David Lubai and Owen timetayer and is published by Creative Computing Press at a cost of £2.00.



non fits by the second he bothbers, and take edvantage of your ability to move in oil disections when dealing with the secondary To deal with the Galaxians, get as close as possible, shoot, then pull the stock back until the shot

hits. Repeal this technique, using rapid jerks of the joystick. Don't allow your ship to become trappad. Stay in the mid scresn area, so you have a buffer zona

The Space Worp mission has ablack hole at the cantra of the screen. This releases objects that fly an ontward spiralling orbs. Since you can move upwerd, it is a good idea to get as close to the black hole as possible in the early part of the wave.

When the Gortian robot appears, fire as many shots as possible. If you don't kill it fairly quickly, back away from the centre of the screen and wart until the robot has gone off the edge

In the Flagship mission, you must line a shot into the core of a ship. You ahots eat away parts of the ship, and at times cacsa

of the ship, and at times cacsa chunks to fall off. The shield offers no real help Just blast a hole in the centre

and fine through it.

When debus fulls from the ship, you can either dodge it or shoot it for extre points. In tight

shoot it for extre points. In tight attustions, don't worry about the points.

SIT ABIRD OR APLANE?

Buy a hang-glider and sea the world. That's the message in the high-flying arcade geme, Fest Freddle

Fast Fraddia as a hang-gilder with a yen for traivel His aim is to stay in the air as long as possible but he must use his skill to maniputete the invisible air currents, wind direction and the unpredictable op and down drafts.

Players us a joystick to control Fast Fradda as he soars ovar the wonders of the world this light takes in the Alps, both in winter and summer, the pyramids and sphinxes of Egypt, the Tej Mahal, the Pacific Dicean and e host of trees, bridges, tropical islands and othar landscepas

FAST FREDOIE

A series of obstocles can be lound in the skias for Freddie to maneauvia around. These include: aircraft, bilds, halicopters and a magic flying carpet- complete with genie.

Ideally Fraddia should fly obova the obstecles and kick them out of the way Points are scored by swooping

down close to earth and snatching flags which are posted along the ground. He can also grab special flags with letters on and spell on a "Bonus" to himself further points come to landing on tiva landing pads which can be found on the way.

WATCH OUT, THE WARRIOR IS ABOUT!

DARK WARRIOR

The alians have landed and they are attacking by land and and it in this sincounter, which tends like something out of Star Wars, the Impanal Federation has landed its assault force on your planetoid and charged it with the mission of destroying your re-mission.

maining fuel daposits.
While its earnal forces keep you busy, the Bark Warrlor approaches from beyond the horzon, keeping low to outwill your lesse guins. With each earnal task force which is destroyed, the Warrior sends in a new one to attack you laser base

After two of the eensi forces have been destroyed, the deadly Neutron attack lone, which is uneringly graded to destroy your laser blaster.

When the fuel runs low there is a verbel warning "Beware the Derk Werrior is coming."

Datk Warnor is one of a single of apit cassotie games which form the Dentury Video Systematic of last month). The cassate is small of last month). The cassate as small as those as commenters and can be plugged into existing games cobined in the cassing games cobined in the cast of the casson of the cast of the casson of the cast of the casson of the cast of the case of the ca

being on the Century system and would like to by one of the challenges described on these pages, them imploite your accede/pot panager to by and get it for you. We will continue to look through the Century range each month.



The final power of Chameleon



It was a pinhall player's paradise! The Pinhall Owners Association convention held recently in South London that

Papple flocked from all over the country to play and display their favourite tables. Around 20 pins were on show and the convention also saw the battle for the coveted

Pinhall Wizard title Dave Dutton from Leeds claimed that honour after battling through to the final which was played on the latest Gottlieb machina,

Rocky. Among the machines on show were Manic City, a Williams machine from '67, Fireball, a Bally table reckoned by pinball addicts to be THE classic machine made in "72, and a Williams Flash.

The Pinball Owners' Associetion was born in 1976 and has grown rapidly. It offers a spares service, a tachnical library, a monthly magazine and invaluable advice for all pinball owners and players Mambarship costs £7 50, and this includes a subscription to tha magazina, called Pinball Player and Penny Slot Collector, plus all the other services the association offers

If you are interested in pinball - or any amusement machines - further information, or mambarship, is available from the association's HQ at the following address: The Pinball Owners' Association, Arcadia, 465 Cranbrook Road, liford, Essex, IG2 6EW

FRANK, DRAC & PICO! Only in blos would a character

called Little Pich date take on the likes of Dracula, Frankenstein and the awasome Chameleon Man only films end "X" rated arcade games

Monster Bash is the name of this imaginative gene of horrors which combines some of the espects of Alien Penic, Donkey Kong and Pacman

Little Pico is charged with the task of entering the cestles of Frankensiein and Drecula and the Grevevard of Chameleon Man and destroying each in lum

The stairways of Drecule's house are gnarded by bals but Pico has a "zep" power which he cen use to shoot these creatures. Dracule is invulnerable to an ordinary zag and a charge of super-zeo" must be sought by Pico He achieves this by lighting candles which energise a megic

The candles also serve to make Dracols weak and when Pico touches the energised sword he earns a cherge of superzap to try out on Drecula Frankenstein's castle is a similet type of challenge but with

MONKEYING ITH MARIO

It's a strange life in the arcades One moment you're the hem and the next you're public enemy Number One

Take poor Mene, the intrapid concenter who asked all to seve the captive girl in Donkey Kong In the game's sequel, Dankey Kono Junior, Merio is cest as the evil villain. He has contured Donkey Kong and holds him Under lock and key in a cage at the top of the screen

The rescue bid must be undertaken by Donkey Kong Junior Like its predecessor, the Junior version has four screens of action. The first screen is the one leatured in this piece and it consists of vines which hang from a series of platforms, snspended in the sky Junior starts his bid from five stepping stones which rise above a nyer.

Apart from the whip-holding

MONSTER BASH

warewoives instead of hets The Chameison Man has soulars as his note and those are not affected by lit candles. He elso hes the power of changing colour to match his surroundings and Pico must make use of three colour bottons to keep this hand Man is his longine which can reach out to entoure Pico or soak-up superzap bolts

A moon also features on the screen. It is Pico's timer, if it goas behind a cloud he knows his superzap power has dwindied and he will have to light more cendles.

There are also such peculianties as Waro Coors - which can only be used when they am litand Jump Down Zones for Monsters and Pico to use



the anapiews which travel up At the very top of the somen is and down the vines. Blue ones Junior's main aim, the key to his Dad's cage which hangs from a trevel one way only (downwards) while md Snapjaws wender up platform above said cage. But and down Junior can use fruit when he reaches it. Many marehe hads on the vines to hurl at Iv rushes and off to another the pursuing Snapsews and cage, and another screen chalscores extre points when he suc-





```
15 HOME ( VTAS (2)14 PRINT * STAR CHARU BY M. FORSYTH.*
20 HCOLOR= 7( HPLDT 0.0 TO 0.159 TO 279.159 TO 279.0 TO 0.0
30 FOR Y = 0 TO 159 STEP 3
                                                                                                                                                                            74 8Y(71 = #32WY(0) = #32FY(F. = #3
    40 HPLOT INT ( 840 ((1 % 200 b))
                                                                                                                                                                                74 BTC 71 = B378TTC 0 > B378TT

100 AUT = D1 SCALE - 1

110 FDR X = 1 TO 7

120 XORAW 7 AT 8XXX100YCX1

130 MFXT
                 HEXT Y
  50 REXTY

40 REX(1) = (351RX(41 = 1351RX(71 = 135

67 REX(51 = (391RX(51 = 1391RX(81 = 139

64 REX(31 = 1431RX(41 = 1431RX(91 = 14

76 REX(31 = 751REX(2) = 751REX(31 = 75

72 REX(41 = 791REX(5) = 791REX(61 = 79
                                                                                                                                                                                135 HOLDT 130:71 TO 147-71 TO 147:87 10 130:67 TO 130:71
                                                                                                                                                                                (40 X = 13917 = 4010X = 139(0Y = 40
                                                                                                                                                                                (45 DOSUB 5000
(50 XDBAN 0 AY 0X-0Y
                 XV = 10:8V = 10:0Y = 3
                                                                                                                                                                                  153 SEN 111 SET UP SCREEN 119
154 L - 7:ST = 400018 = 0
  460 EK = 1391EY = 7910 - 1
  182 PORE
                   PORE - 14348:00 FLASH | PRINT * MAI1 - 16384:128 HOME : VTAB (211: PMINT *
                                                                                                                                                                                                HIT ANY KEY TO START
                                                                                                                                                                                                                                                                                                                                  *1 MODRA
                 MALL
                                                                                                                                                                                             SCORF = * (1)
  185 BORE - VI
187 GBSUB 500
178 FOR T = 1 TO 100000
  200 8 = PEEK ( - 163841
205 Z = FRF (01
                   IF (K = 16G : # (AF = 0) THEN PORE - 16368:0:SF = 11 GOSUB 70019F = 0
                 1F K = 201 THEM TV = - VT
1F K = 205 THEM TV = VY
  235 IF K = 205 THUM FU = VY

206 IF K = 205 AMD XU > 0 10 R (K = 203 AMD XU < 81 THEM XU = XV # - 1

206 K = X + XV17 = Y + YW

205 IF X < 0 R Y > 207 THEM XU = XV # - 1(X = X + XV + CEEUB 1000

201 IF Y < 0 R Y > 137 THEM YU = YU # - 117 = Y + YU | CEEUB 1000 PCKY - 143680
2-02 COMPA SAT CEAST INCHES AN IN-Y

2-02 IF # * 1 THE WILLIAM INCHES TO

201 IF # * 2 THE WILLIAM INCHES TO

201 IF # * 2 THE WILLIAM INCHES TO

201 IF # * 2 THE WILLIAM INCHES TO

201 IF # 2 THE WILLIAM INCHES TO THE W
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AF (GC %) FREM A = A - (M, + 11 IF (GC & A) FREM A = A - (M, + 11 IF (, 0 AND IS > 185 OR B < 15 OR A > 285 OR A < (51 THEN FOR P = 1 TO 1015P = PEFK (- 1633 NEXF PID = 2) GOTH 4500

 $\Delta ()$ MEXT F: () = 21 EUTU 4000 336 A = A + AVI 1F A > 279 BE A < 0 THEN AV = - AVICE = 51 EDBLE 1000(A = A + AVI

BUNS ON AN APPLE

IN 24K

BY NEIL FORSYTH

You can tell it's almost Christmas. Even our favourite friends the aliens are getting into the festive spirit. It seems that the best selling gift thus year is a space pod - and our little aliens just can't get enough of them. Some unscrupulous aliens have actually decided to resort to stealing these much sought after space pods. As an emplovee of Santa's Intergalactic Branch your job is to defend these pods from the marauding aliens.

This game comes in two parts. In the first you blast away at the multi-armed aliens as they attempt to steal the pods. If you manage to shoot an alien which has stolen a precious pod



before it reaches the edge of the screen you'll get the nod back. In part two -which starts after the third multi-armed alien is shot your task is to collect pods being dropped by aliens. You must do this quickly as the aliens have the nasty habit of exploding - and will destroy you if your ship 15 too close. If you manage to get through unscathed the game starts again with your ship at reduced power until you reach 6000 points when you will be refueled. Controls are: I-up, J-left, K-nght, M-down

Variables and

subroutines

A X CO-ORDINATE of alsen or als

AF When spaceship movement routine is used as a subroutine "AF" confirms use of return

AL alien

Current form of

```
370 B = 0 1 AVI 15 B > 159 OR E : 0 IMEM AV = - AVICE = 01 COSUS 1000:B = B + AVI
IND XBRAN AL AT CALDEL YEARS A AT A.R
200 STANLE, AT GAUGET 12004 A. AT 4.8 

200 STANLE, AND CONTROLLED AND CONTROLLED
450 XBRAW F AT BXIL1+BILL)
460 L = L - 1: FOR P = 1 TO 10:SP = PIEK ( - 1633611 REXT P
470 CB = 1
                       IF SF = 1 THEN BEING
495 MEXT
  445 REH
  4% REH 111 HAIH BOULLWE 111
497 SEN

**500 H = 1HT C RMD (1) ** 2) + 1

502 H = 0 + 4 THEH D = 15M. = AL + 1

505 HF B / 2 = 1NT 1H / 2) THEM GDID 560

547 RA = 5
507 RA = 5

510 8 = TMY ( RMD 111 & 141) + 10

520 A = 1MY 1 RMP 111 & 21 + 1

530 1F A = 1 TMEN A = 0140 = AL 7 1.8

549 1F A = 2 TMEN A = 2791A0 = - AL 1

550 6070 4010 A0 111 & 2801

570 B = 1MY 1 RMP 111 & 2801

570 B = 1MY ( RMP 111 & 2) + 1
                                                                                                                                                                                     - AL 6 1.0
  **STS SA = 7**

580 1F 8 = 1 THER 8 = CIAV = AL 1 1

590 1F 8 = 2 THER 0 = 1591AN = - (AL 1 1)

600 0A = ACO3 = 3

**ALO 355688 81 45 CALOR
     640 REN 111PUT ALIEN ON SCREENLIL
                         REM & SELECT DIRECTION
                         REM VERILDAL OR HORIZONIAL
2F 1V - 220 AND 3V > 01 OR (X < 10 AND 3V < 0) THEN METURN
  703 UX = X: XERNS 10 A1 UXS-T

705 UF XU < 0 1HEM FOR XR = X - 10 TO 0 STEP - 9

718 UF XU > 0 THEM FOR XR - X + 10 TO 279 SIEP 8U
     231 DOBER 270

723 ROMBE DO AT UDB-VT XERWE TO AT XEVY

725 EP = PERR ( - 163745) - FEER ( - 16584)

727 EP ( - 167145) - Z-6 ARMO 1A > XE - 51 ARMO 1A < XE + 2)> OR 11A > XE - 51 ARMO 1

A - XE 1 51 (1982 ) 51 ARMO 1A > XE - 51

ARMO 12 ARMO 18 (200 DOB C) 4 ARMO 1A > XE - 51 ARMO 1A < XE + 2)> OR 11A > XE - 51 ARMO 1

ARMO 12 ARMO 18 (200 DOB C) 4 ARMO 1A YEAR ( 200 DOB C) 4 ARMO 1A PER ( 200 D
     PHYSIC - R + RFD AREA WAS NOW NOW 745 IF ILLE C C + 101 F 10Y > CY - 101 F 10Y < CY + 10) INCH KORAM 9 AT BYCLIAN FLASH L - 11 FOR P = 1 10 101
        SP = FEEN 1 - 1638611 MEXI P1 IF L = < 0 THEN P = 21 SUTO 4000
TOO TF PEEX 1 - 163843 > 128 INCH XIRAW 10 AT XB-Y1 6E1USM
760 LIXB = XR
                            MEXT XB
                               Y0540 10 41 10/8+1
        794 REM
798 REM *** ISPACES(IIP FIRESILL
                               XDRAN AL AT DA-DET SCALE* 2
     BO7 FOR R = 0 TO 128 S1EP 8
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\(\sigma \) 535 SD300 P00

\[
\begin{align*}
\begin

793 MEAL N V E 2 & SGN 1XV)! SCALE= SC; FOR R = 0 TO 127 WTEP 4
942 SP = FEEK 1 - 143341
943 SOT = 8; XORAN 10 ST A+8
950 NEXI R

VOI 50445 1: 501-0; VIDEGA 7 AT ANISO - SC \$ 3 \$20 15 (X + 0 C) \$ 1 X \to 4 \ \ 5 1 \ \ 1 \ \ 2 \ \ 8 - SC \ 8 \ (Y < 9 1 \ \ 10) THEM \$ 0 \ 11 FOR \$ P = 1 TO 128 STEP \$21 35 (X + 0 C) \$ 1 X \to 4 \ \ 5 1 \ \ 12 \ \ 1 \

750 B = S + <1 * 501% WTAR 1211% NTAR (221% PRINT S



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965 XV = XV - SCN (XVIIVY - WY - SCN (VYI & (7 / TOTLAY - BV - 1TAE - DISE - DI 15 XV - 0 THEN D -. Aliens velocity along its chosen direction 31 SOTO 4000 ST THEN ST = ST + 4000? GOSUB 5000; GUTB 155 towards the center Y CO-ORDINATE THE THREE MODINE FOR ACTES TURNING.

100 FOR P - 17 O STPP - PERK 1 - TASAGI NEXT | BETURN

1010 F ! T REN SPEAKEN NOZE IT!

2006 A - THE REN (SPEAKEN NOZE IT!

THEM C. SPEAKEN NOZE IT! REN TITHATH ROUTINE FOR ALTEN PORGITY of alien or alien pod Your ships bullet 2010 B = INT (RNB (11 * T40) + 201 TF (B > CY - T0) * LB (CY + T0) THEN COTB 2010 CB Value is one if 2020 H = H - 135N + A alien has got a pod 2005 H = 8 - T358 F P 2015 MCLIOP 21 BEAR 4 AT NEN 2015 FDA P = 1 TO 251 X20AN 4 AT NENSP = PEEN (- 1A336)1 MEXT P 2016 MCDCLE - Z BEAR 4 AT NEH 2020 FOR P = T TO 4001 MEXT PT XBRAM 4 AT NEW X0RAM 6 AT NEB ORDINATE of screen cames 2072 FOR P = 1 TO 5001 NEXT P 2072 FOR J = 1 TO 5 20075 FOR J = 1 TO 2 2000 FOR Z = 0 - TO TO B ORDINATE of screen center . Number of kind XDAAH 7 AT ALZ of alten sppeared so far (3 of 2070 AUPHN / H H/Z each kind Valso mode of THO NEXT 7 death at end of same) 2130 XB1AM 7 AT ArB 2135 HCQLQR- 21 IRAN 6 AT NIH 2140 FQR F x 1 TD 25; X95AM A AT HIM Randomly chosen direction for alien(horizontal 2145 SP = FEEK I - T633AT or vertical) 2150 NEXT P PERSON NEXT PERSON A AT NO. 2170 HCGLOR- 7: HPLOT 0:0 TO 0:T59 TO 279:T39 TO 279:0 TO 0:0 2170 HCGLOR- 7: HPLOT 0:0 TO 0:T59 TO 279:T39 TO 279:0 TO 0:0 2180 HPLOT 120:71 TO 147:71 TO 147:87 TO 130:H7 TO 130:71 X . Read Keyboard Number of pods left Looning REM
REM THYPERDRACE ALTEM!
REM DN SCREEN DEPOSIT
REM ALTEM POD THEM
REM LEAVE Old X CO. ORDINATE of alien TEXT : HOME Old Y CO-FI ATH 4.010 ORDINATE of abou 4000 TF D = 1 THEM PRINT "THE SEGUT TRAP GOT TOU,"
4000 IF D = 2 THEN PRINT "ALL THE POUR ARE DOME."
4040 IF D = 3 THEN PRINT "YOUR POWEN CELLS ARE DEAD."
4040 IF D = 4 THEN PRINT "THE ALTEM SAGRED YOU." Old X CO-ORDINATE of spaceship Old Y CO. ORDINATE of spaceship AATA BRINT FORMOUT WIR Looning 4 DEG FRINT Rotational loop 4010 FOR P = T TO SOO! NEXT PI FORE - 14369.0 4100 PRINT "BO TOU WANT TO PLAY ACAIM "/! GET MS 4110 IF AS - "Y" THEN CLEAR I GOTO 10 when alien dies Vertical range of 4120 TEXT ! HOME I OND 4 120 REW Score REN TIT END OF DAME ROUTINE TIT Scale for 5000 FOR N = 1 TO 2 5010 FOR SC = 12 TO T STOP = 1 5015 SCALE= SC 5020 XERAN B AT X1Y maceship power up and pod explosion When spaceship FORE 769-SC & M & TOT FORE 769-TO: EALL 770 REM TIT FLAY MUSTC NOTES 17T fires, alien continues to move. Its movement routine is used 5050 MEXT as a subroutine SF determines whether the SOTO REM computer meets "NEXT" or SEGO REM TTTPOWER UP SPACESHIP TIT TRETTIENT 6600 FBR K = 770 TO 792 52 Speaker click READ Y Score at which PORT Y.Y bonus power is given to 173,45,192,136,208,5,206,1,3,249,9,202,208,245,174,0,3,76,2,3,98,6,0 spaceship(6000) Loop around main BEN TITT POKE TH MUSTIC ROUTINE TITT 6080 REN Time in which HCRO T TEXT & POKE 232+141 POKE 233+A4 aken pod must be picked up SCALE- LT ROT- 0 FOR X = 16400 TO 16575 before it explodes READ Y UXB Old X CO-PONE X-1 ORDINATE of bullet TO: 0: 22: 0:33: 0:52: 0: 64:0: 84:0: 107: 0: 131: 0: 141:0: 164: 0: 170: 0 Magnitude of DATA A2,A3,44,33,3A,53,42,45,62,51,54,37,0 DATA 39,37,39,10,7,53,57,54,45,58,31,27,37,41,4,6 spaceships vertical velocity X CO-ORDINATE 10090 of spaceship X CO ORDINATE of bullet DATA 54:45:46:44:37:45:40:39 :63:40:62:63:39:55:63:62:55:45:46:53:37:45:6 Velocity of spaceship (horizontal) BATA A3:12:17:41:13:0 Y CO-ORDINATE 10THO REN TOTOL REH of spaceship TITT POKE SHAPE TABLE 11TT Velocity of LOZDO REM ONTO HIGHZ BUREEN TO SAVE NEKORT BEK spaceship (vernosl)

Looping

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The incredible new computer from Commercian comes with 64K RAM fitted Plus 16 colours, hi-res graphics, 320 x 200 pixels, 40 columns by 25 lines, Z80 micro processor can be edded - that means you can run CP/M software, B indepandently movable Sprites with collision detection, and a sound generator with 3 voices, 4 waveforms, anvelope and filter to rival some dedicated music synthesisers. And all this at the most incredible price ever (AF56L) Only £339.00

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The amazing naw British computer with a full-travel standard keyboard, a 16-bit micronrocessor, 32K RAM fitted (axpandable to 64K and later to 256KII). 9 colours, hi-res graphics and Microsoft extanded colour BASIC (the very best BASIC to laarn with). It can be used with virtually any ordinary cassetta recorder it has a printer interface (Cantronics-type), joysticks are available and it's incredible value for money. (AF57M) Only £199.50

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Once you have decided on the number of players — up to four can take part— such players — up to four can take part— such players — up to four can take part— such players — up to the player parts and when the player parts and the any continuated. C. p. p. of it may order and it any continuated. C. p. p. of the player mass saker an option from 112. The player mass saker as option from 112. Description of the player parts saker as option from 112. Description of the player parts as taker as option from 112. Description of the player parts and the player p

RUNS ON A ZX81 IN 16K
BY C. J. BARHAM



YACHTI

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LET
LET
LET
LET
LET
                                                                                               T$="ABCDE"
H(5)
P1=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21,0,"(1-12)"
                       200233
                                                                                                                                                                                                                                                                                                                                                                            2020
2030
2032
2050
2050
70 LET P1=1

72 LET LE=10

80 LET P2=5

100 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              20.0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           OP CO OF SE THEN GOTO
                                                                                                                                                                                                                                                                                                                                                                                                                                                           OF)5 THEN LET OP=DP+2
P(PL,OP) >=0 THEN GOTO
                                                                                                                                                                                                                                                                                                                                                                    SEATO LET PISSO

2000 LET PLACE

2000 IF DOPS THEN GOTO 2200

2110 LEUR PLACE

2110 LEUR PLACE

2111 PERMY RT 7. (PLL) 2120-192

2120 IF PLACE

2120 PERMY RT 7. (PLUS THEW 2000)
             /ST-11
                                                     CLS
PRINT RT 10,10;"YRCHTZEE"
PRINT RT 12;1,"HOW MANY PLI
11,141"
INPUT PLYRS
IF PLYRS(1 OR PLYRS)4 THEN
800
             892
                                                                                                                                                                                                                                                                                                                 PLA
                                                                                                                                                                                                                                                                                                                                                            IF P (PL , 7) (PLUS THEN GOTO 3
                                                                                                                                                                                                                                                                                                                                                                                                                         IF P(PL,8):0 THEN GOTG 3000
LET P(PL,8):50
PRINT RT 8, (PL-1):P2+P1+P3-
                                                  RAND

CLS

FRIT NUMG=0

LET PL=1

DIM P(PL/NRS.15)

FOR M=1

FOR M=1

FF M=7 OR M=8

LET P(N. M) =1

NEXT N

NEXT N

NEXT N

PROBLES SPARE
             840
980
980
910
920
942
942
                                                                                                                                                                                                                                                                                                                                                                                                                      GOTU 3000
GOSUB 9200
IF OP=10 THEN GOSUB
IF OP=11 THEN GOSUB
IF OP=12 THEN GOSUB
IF OP=13 THEN GOSUB
IF OP=14 THEN GOSUB
LET P (PL.OP) = PTS
PRINT RT OP, (PL-1) #F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9500
9400
9500
9700
9300
                                                       GOSUB BOOD
                                                  GUSUB 8800
SLOU
LET TURNS
PINT RIGHT
GUTO 1028
BEINT RIGHT
FRINT RIGHT
FRINT RIGHT
FRINT RIGHT
FRINT RIGHT
FRINT THEN GUTO 200
FRINT RIGHT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OP, (PL-1) #P2+P3+P1
                                                                                                                                                                                                                                                                                                                                                                                                                      LET P(PL , 15) =P(PL , 15) +PTS
                                                                                                                                                                                                                                                                                                                                                                    3014 PRINT RT 15, (PL-1) *P2+P1+P3

(P(PL,15))

5020 LET PL=PL+1

3030 IF PL((PLYRS+1) THEN GDTO 1
                                                                                                                                                    20,0.
THEN GOTO 2000
18,10, "THROW"
                                                                                                                                                                                                                                                                                                                                                                                                                 LET PL=1
LET NUNG=NUMG+1
IF NUMG(12 THEN GOTO 1000
GOSUB 7000
PRINT AT 18,8.VIN," WINS
  1030
                                                  GOSUB 9000
LET TURN=TURN+1
IF TURN:3 THEN GGTO 1010
GOSUB 9200
PRINT AT 20,0;"OPTION ?"
     1040
```



```
100 IF INKEYS.) "" THEN GOTO 500
1100 NEXT N
1100 N
```

```
SCAR LET (LM (N)) = 1

SCAR LET (LM (N)) = 1
```



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SPACE ROLLE

RUNS ON A SPECTRUM IN 161

BY DAVID HOUNSLOY

Painting white lines down the middle of the road has never been an aasy task. All those motorcyclea, cars and juggarnanta racing around ara hardly an ideal environment for the creative whita line painter. But now things are getting evan worse. I auppose it had to happen in the era of tha microchip. Someona carrying out one of those time and motion studies has come up with the idea that white lina painters would work quicker if missiles were chasing them. A fair point I hear you say. Anyone would work quicker if a highly explosive missile was coming their way . .

This is a mixture of two arcade gamee. You have to guida a white line painter along a road - eating dots and painting linea at the same time. You must also romember to avoid the haat seeking missile which chases you,

Keys 5, 6, 7, 8, control your movement, Pressing 1 will double your speed - pressing it a second time will return you to normal speed. However this uaea more fuel and ahould only he uaed in emergenciea. When you manage to clear a screen another will appear with two missiles - one of them travelling at doubla speed. There are a couple more faaturee of the gama which must remain a mystery - hut Computer and Video Games readers like mysteries - don't you!



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52. 435 LET 0\$=\$\$
436 IF INKEY\$="1" THEN LET 5\$=9
5. LET 9\$="1" LET 9\$={'1" RND h\$}
="0")+("0" RND h\$="1"); LET \$=2*(1" RND h\$=1"); LET \$=2*(1" LET 5-24 438 LET fuet=fuet-1 PRINT INK B,23;"FUEL.", fuet*(fuet)=0) fuet(0 THEN PRINT AT 0,26;" 440. IF INKEYS: "MAND INKEYS()"
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44 1440 198 REH 191 REM 192 REM 193 PRINT BO." MAIN ERCSEAM SPACEROLLER D. Houns Law 0.11; "MISSILES: " 21: PRINT RT : 505 IF Oldy=y AND Oldx=x THEN

17 85=05 IP OR 85="6" OR 85="7"

27 10 IP S="6" THEN LET 45="", LE 45="", RND 85="6")+1", RND 85="6")+1", RND 85="6")+1" HT 1.20 10 21 PRINT PRIN PRINT AT 0 'OR i=1 TO : T i,30;"]" PRINT HF I \$="5") \$15 PRINT AT 9 \$16 NEXT 0 520 FOR 9=1 TO 530 FOR 9=1 TO 535 LET P\$="". 8T 9.X) INK 2.ds 220 PRINT AT S(P) BIRT SSE FOR 9=1TO (D) | D) | THEN 60 |
TO 570 | THEN 60 |
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THEN 6 RND . 7 THEN G 19,2," 230 FOR 1=4 TO B. PRINT RT 1,2 19. AT 1,28; 3; AT 1+9,2; 3; AT 149,26; 5". NEXT 1 240 PRINT RT 10,2 ": AT 1,1; 10K 4." INK 1,67 12,2; 3". 250 PRINT RT 10,28 "" AT 11,2 INK 4,7 " INK 1,67 12,28; 3". PRINT AT 1 (2) 250 PRINT RT 3.14; ""; INK 1; "
"; INK 1, ""; AT 19,14; ""; INK 1; "
270 PRINT INK 4; AT 2.15; "; AT 28,15; " INK 4 260 PRINT AT 5,4," INK 4,"", INK 1:"; INK 4," INK 4. INK 1:" INK 1: "290 FOR 1=6 TO 10: PRINT RT "1"; RT 1:25; "". RT 1:45,4."] 1:6,25; "". RT 1:45,4."] 1:00 PRINT RT 10:4, ""; RT 12:5; "". RT 10:25; "". RT 12:25; "". RT 11:4; "". 175,4, "1" AT 100 PRINT FT 10.4 PRINT 12.4 PRINT 13.4 PRIN 0 TO 700 530 NEXT 9. NEXT P 540 GO TO 425 700 INK 2: BRIGHT 1. FLASH 1: P 9PER 7. CLS. BEEP 1.40° FLASH 2: BRIGHT 0: CLS. PRINT RT 10.1 3. "SCORE: "; score: FOR X=1 TO 100 : NEXT X: RUN BEH The Gaine 375 REM 376 REM 380 INK 400 LET HEN LET 425 FOR 400 THEN 425 h = h + 1 LET S-1 IF #=3 %=2: LET 5(2)=2 COMPUTER & VIDEO GAMES 47

Water of the same of the same



"You youngsters don't know how well off you are! It's not easy heing an old-agepensioner you know. Take my trip to the post office to get my pension for instance. I have to cross an extremely hasy road — dodging the big forries and cars hecause they haven't put in a crossing yet. It's lucky I'm still quick on my pins otherwise I wouldn't be talking to you now. I've had several close shaves I can tell you! But that's not the end of it. After the road comes the river and as I never learnt to swim as a gir! I had to devise a special way of getting across. It look me weeks and weeks and several loaves of Mother's Pride to get the ducks to help me out. Now they let me use them as stepping stones to get to the other side. I bounce off their backs like water off a. .. well you know the rest of that old saying don't you! The only trouble is that sometimes one of my feathered friends decides to take a quick dip tust as I am about to step aboard. So far I've managed to avoid a ducking! Just my little joke. But I'm sure one day I'll end up in the drink. Anyway this nice young gentleman has just offered to take me across the roads o I'll see you again soon — as long as the ducks are still friendly by the time I reach the river. Breece!"

As you may have guessed by now this game is a version of that arcade favourite Frogger. In this version the frog is replaced by a granny and the frog's nests by several post offices. You are given four minutes to get seven grannies to a post office so you have to move fairly quickly. When the seventh granny reaches her destination she gets a double pension and you get another chance to help seven more old ladies across the road. The game starts slowly hut speeds up. When a score of 2000 points has been reached the game is at its maximum speed — and will prove difficult to even the most avid Frogger player.

Variables.

A\$(1-8), B\$(1-16), C\$(1-6); car, log and duck strings. A\$: General get statement variable. H: Number of granules and post offices. TIS: Time. Y: Distance down the screen. X: Distance dipth of the screen. A: Peeked number of character that granup is standing on. Is General movement loop. P: Peeked number of key being pressed. HT: Number of times granup has been hit. L: Delay loop. Sc; Socre.



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1 DIMB#(16),8#(B),C#(B)

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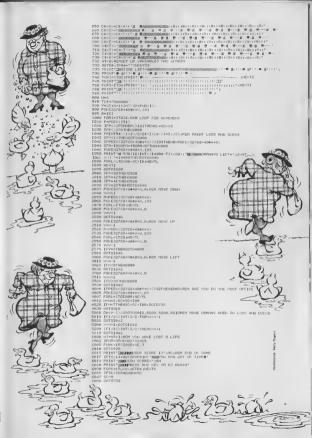


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110 DIN COL (2,6)
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(1) CHLL COLDR (10, COL (1, 3), COL (
170 CALL COLOR(11,COL(1,5),COL((6)) 190 CALL COLOR(12,8,1)
30 SBH_CEDBS(12.0.1) 30 SBH_CEDBS(12.0.1) 30 SBH_CEDBS(12.0.1) 30 SBH_CEBBS(12.0.1) 30 SBH_CE
30 PRINT ONE HOMENT": 1
50 FOR 12=1 TO 6 60 REAG A 70 CD (1.12)=a
80 AEXT 12
10 CHECK-CHECK+COL(1.1)HP
40 DATA 6,12,2,11,5,16,99
30 UDA 1: TU 6 CUECK-CHECK-COL(1.1) M7 CUECK-CHECK-CHECK-COL(1.1) M7 CUECK-CHE
SU SBUL_CHAR(12;F\$) 00 OHLL CHAR(97,F\$) 10 OHLL CHAR(10,F\$) 10 OHLL CHAR(110,F\$) 10 OHLL CHAR(110,F\$) 10 OHLL CHAR(120,F\$) 10 OHLL CHAR(120,F\$)
50 GHLL CHAR (113, F3) 60 GHLL CHAR (123, F3) 40 GHLL CHAR (123, F3)
13 SRL 1888 (130, F\$) SRT 1150 SRT
CALL SOUND (-99, 698, A, 1924, A)
O CALL CCHAR(7, 13, 8)
O RETURN (6, 17, 8, 5)
0 DECDL(2,6)
U B=CDL(1,6) U FOR I=6 TD 2 STEP -1 O CDL(1,1)=CDF(1,T-1)
0 CDC(2) i) = CDC(2) i-i; 0 NEXT i 0 CDC(1) i) = 0
O COL(2,1)=B O RETURNSO TO TOO OFF
3 REPUBLISHED TO TO TO THE POINT OF THE POIN
0 B=CBC (2) 11 0 FUR 1=1 TD 5
0 SEL (2: 1) = GEL (2: 1+1)
COL (2,6) EB
0 CALL SUUND (50, -3, 5) CALL SUUND (30, -7, 20) CALL SUUND (400, -7, 20)
CDL (1, 1) = CDL (2, 5)
) R=CGL (2,1)) CGL (2,1)=CGL (1,5)) CGL (1,5)=CGL (1,5)
A=COL(1,6) COL(1,6)=COL(2,6)
SETURION TO THE PROPERTY OF T
A=A+1 CALL_UCHAR(6,15,A,5)
HEHLI UCHAR (6,15,8,5) RETURN FOR A=0 TO 30 STEP 12

	950 CALL SOUND(-99,1000, A,3250, A,6750, A) 990 NEXT A
	990 NEXT A 1000 R≋CDL(1,2)
R	1010 CDL (1, 2) = CDL (2, 4) 1020 CDL (2, 4) = 0
_	1040 CUL (1,4) =CUL (2,2)
	1050 A=COL(1,3) 1070 COL(1,3)=COL(2,3)
	1080 CBL (2,3)=A 1080 CALL GCMAR(7,17,A)
	1100 IF (H=120)+(A=128) THEN 1120
	1130 CALL UCHAR (6, 17, 8, 5)
	1150 CALL CLEAR
-	1982 S SHAW"! T
-	1130 PPINT "THERE IS AN OUTEP RI
(1+	"PAPTS CULLORS AND TWO INNER"
L(1)	INNER PARTS, ROTATE THE DUTER P
	100 E.T. (12.2) 100 E.T. (12.4) 100 E.T. (12.4
	1210 PRINT "YOU MAY MANIPULATE T
	TORE. JUMBLE IT FOR YOU TO THEE
	THE PROPERTY OF THE PROPERTY O
1	DE "KINI "PRESS ENTER TO CONTI
1	250 CALL CLEAR 250 PRINT "PRESS!": :": TO MOUTE
1	ULATE 12 TO RESTORE : 1 1 PHN1
Î	280 1 H(49)*(8)50) THEN 1270
1	SUCTY PRESS 1,2,3 DR 4-P1FF
1	320 IF B (1 THEN 1310 330 IF (A (49) + (A:52) THEN 1210
į.	240 PRINT FIRST YOU WILL SEE T
	SHORT DELAY WHEN THE SCREEN UT
13	THE THEN YOU MUST RESTOR
1	370 FOR I=1 TO 900
A) 13	390 GUSUB 1750 400 GUSUB 140
14	20 NEXT 7
14	140 CACL COLOR(1;1,1)
14	.60 GDTD IS:0 170 GDSUB 1760
14	90 GOTE 1630
155	10 FOR P=1 TR 3*(8-48)+1
0.	30 NEXT P
15	40 FLRG=1 50 QUSUB 140
155	20 CALL COLUR(12,8,1) 20 CALL COLUR(13,14,2)
15	jo call coros
16 16	10 REH END RANDSMIZE 20 REM NOW THE MANIBUL OTTEN
15: 15:	30 CALL SDUND (200, 330, 0)
168	10 IF B (1 THEN 1840
90,	20 Ref NOW THE THIND TION OF SELECTION OF SE
163	O FOR IN YOU
171	B REATOR (1,1) HZ
630	O IF A=CHECK THEN 2160 ELSE 1
175	8 CAUL CLEAR
177	O REH STEED SPACES
	o erk meericus z SPRCES

PROGRAM NOTES

100-130: Imtalisation 140-200: Display current colours (subroutine)

220,460-Set up mital colours, stored in the 2-dimensional array COL(N M) where COL(1,M) is to face, and COL(2.M) is the back of the same Dince

470-540 Subroutine to switch the central pieces 550-680: Subroutine to move outer ring

clockwise 670-780: the same thing anticlockwise 790,960 subroutine to awiyel (he left hand side same thing but

right hand side 1158-1290: Instructions and first choice 1900-1610-Computer

970-1140:

randomizes display (invisibly) 1620-1680 Input routine to manipulate display

1690-1730 Check to see if back to onqual display

1750-2140 Subroutine to print display 2180-2260: Successful end to puzzle

This program occupies 4950 bytes, but requires \$589 bytes to run. Because full use is made of the special colour and sound commands of the 99/4A, it will be difficult to

translate this program. All sixteen colours are used to form a colourful display, and good use is made of the CALL SOUND

Novice programmers may find lines 1660 and 2190 of interest - in 1660 the '+ takes the place of OR, and in 2190 the '*' takes the place of AND - these are useful devices to use.

The PRINT commands should be typed exactly as they appear, as the program uses the GCHAR command in manupulating the pentral



1956 " "&CHR\$ (12 1 TO 5 \$25%\$1125%" "%\$105\$ "PRESS: ": "1 TO SWOP C PRINT '2 TO ROTATE CLUCKWIS PRINT "3 TO ROTATE ANTICLOC PRINT "4 TO SWIVEL LEFT SID PRINT "5 TO SWIVEL RIGHT SI SS CLEAR AND TH

T199/44 IN 6K

Remember Hungarian Squares? If that had you tearing your hair out wait until you try this new one from the devious mind of Stephen Shaw. This one does not involve squares - just sings - and it's sure to have you going around in circles.

The puzzle may be imagined as a disc with an outer ring of six colours and an inner ring of two colours. It is double sided and the outer and inner rings can be rotated.

There is also another - vertical - axis of rotation at right angles to the screen. This gives an almost 3D effect to the puzzle.

You are given the option of either manipulating the puzzle, or allowing the computer to jumble it up and attempting to restore it. Four skill levels make this brain twister a lasting challenge - will you take it up? Remember, the Cube has got nothing on this! Happy puzzling . . .

Read this ad

You: "Darling, I've decided to buy a computer."

Her: ***++**??!!***@XX??££**??!!? off!"

You. "Yes, I know we could do with a new washing machine. But the new Dragon 32 Computer is muchmore important. It's the first computer actually designed for all the familyand it costs under £200!"

Her: ***++??!!@££??! fortune!"

You: "No, I'm not being selfish. Computers are for the whole family - and they're going to play a big part in the children's future."

Her: "Oh?"

From this point on, the conversation should follow more reasonable lines.
Allowing you to fully explain the many advanges of the new Dragon 2 tamily computer.

RAMFOR UNDER £200:

For a start, the Dragon ress 32K RAM Your wife may ot understand that, so just tell ler that the Dragon's capabilities e truly massive - at least twice as powerful as its competitors, with some features you won't find even in more expensive units. The gon will give you all the power relikely to need, and more to e your own programs - along with

an exciting range of software which can do anything from helping with kids' spelling and anthmetic to creating your own cartoons.

THE FIRST FAMILY COMPUTER.

All of which brings you nicely to the point where you tell your wife just how much fun the kids will have with the Dragon. How it will save her all that



How it will magically translate simple typed instructions into beautiful drawings and designs using set, line, circle, draw, scale, rotate and paint features, in up to 9 colours - and play and compose

to your wife.

SPECIFICATIONS

6809E MICROPROCESSOR. Pet. Apple, Atan 400, BBC Micro, and VIC 20 still have the less powerful 6502. 30 KR AM is a stundent. At least twice the power of smilarly priced natchines. Expandable to 64K RAM. EXTENDED MICROSOFT COLOUR BASIC (as standard. Featurings. ADVANCED GRAPPICS (sec.line, circle.

paint, print, draw, rotate and print using).
ADVANCED SOUND 5 octaves, 255 tones.
AUTOMATIC CASSETTE RECORDER CONTROL,
FULL EDITING with INSERT and DELETE.

POLLELATING WIRTHSERT BIGL

USE WITH ANY U.H.F TV and/or separate P.A.L. monitor
PROFESSIONAL QUALITY KEYBQARD
Typewriter feel, Guaranteed for 20 million depressions.

TRINIER (Centronics paraties),

with 5 octaves of music. How it will engross your children in mind-boggling adventures in dungeons and caves without even getting their knees dirty. And the Dragon works with any U.H.E.TV.

THEY'LL LEARN AS THEY PLAY.

And then you can casually point out that although the kids are having fun, they re also learning. And within a very short space of time, the whole family will be completely

at home with programming - with computer language - with every aspect of how computers work. Which can't do their future prospects any harm at all.

BRILLIANTLY SIMPLE INSTRUCTION MANUAL.

The Dragon is made in Britain, designed with the help of British Universities, And it's also worth remembering that the Dragon's instruction manual is clearer and easier to

understand than any otherhomecomputers.

That its top-quality keyboard is as easy to use as a typewriter, and so well made it's guaranteed for twenty million depressions.

TAKE THE FAMILY DOWN THE HIGH STREET.

And if she still wants to know more, take her to see the Dragon 32. It'll soon be available in most good stores - or you can send the coupon for further details.

And if you're one of our many lady readers, please accept our apologies.

Perhaps you'd like to read this ad to vour husband.

DRAGON 32 The first family computer.

To Jean Webster Drigon Data Ltd., Queensway, Swarsea Industrial Estate. Swarsea, Clamorogan SA5-8EH, Tel-0792-580655.
Please send me further information about the Dragon 32.
Name

Address

A member of the Mettoy Group of Companies.



proceduree go into ection. out before time runs out?

It'e just another rontine The maintenance men day in the life of the men have to leave their underworking ewey in the ground workplace ee heart of en edvenced repidly as possible. The nuclear reector when sud- failsafe mechanism is hedenly the anthinkable ginning to shut down the happens. A radiation reector and seal off areas alert. Sirens hlare out a with airtight doors. Will warning and emergency you be able to get them

Doors are opening and closing all over the building. Tonching the walle will prove fetal - they are contamineted by the

radiction leak. One touch and you are finished.

cented to you. Try not to get tranned Before etarting the

game ensure the joystick is plugged into port one on the front of your Atari. Apart from the initial Run Instruction the whole You must keep moving game le controlled from

RET HIRLUCK

8 REM SPRINGFIELD CHELMSFORD ESSEX

18 GUSUB 3888 28 X=185;Y=115;C=8

30 A=PEEk(106)-24:POKE 54279,A:PNBASE=25

50 POKE 559,467 POKE 623,41 POKE 53277,31P OKE 53248,X

60 FOR J=PM6ASE+512 TO PM6ASE+640:POKE J

78 FUNE 784,124

80 FOR J=PMBASE+512+Y TO PMBASE+516+Y*RE AD A: POKE J-A: NEXT J 30 DATA 10,28,40,8,20

100 RESTORE (90) 102 GOSUB 105: SETCOLOR 2,3,8:60TO 117 always take the exit pre- the joystick. 185 FOR N=1 TO INTORNOC10010000 >+5800 NEXT

110 FOR Z=1 TO 3:FOR Z1=150 TO 20 STEP -7:SOUND 0.Z1,10,7:SOUND 1,Z1+7,10,7:SOUN

112 FOR H=1 TO 201 NEXT H 115 SETCOLOR 2.3.INT(RND(1)#8)+2:NEXT Z1

116 FOR M=0 TO 2:SOUND M.0.0.0.NEXT M:SE TOOLOR 2:15,3:RETURN

116 PURE HITCLE .0 120 A=STICK(0)

121 E=E+1:1F E>40 THEN GOTO 1700-

125 POKE 67,1: POSITION 2,477 #6; "radiati on leak

127 POSITION 2,5:7 #6,"clear building" 130 IF A=15 THEN GOTO 120 135 C=C+1/IF C=350 THEN GOTO 1500

56 COMPUTER & VIDEO GAMES

137 IF C=13 THEN COLOR 2:POWE 87,7:PLOT 134,79:DRAHTO 134,88 140 IF A=11 OR A=18 OR H=3 THEN A=A=2:PO RE 53248,A

150 IF H=7 OR H=6 OR A=5 THEN X=X+2:POKE 53246.X

160 IF Set3 or help or Res Their FOR Jet8 OF 8 STEP - IPPOKE PRISES-STEP-VI-JEEK PRISES-STEP-VI-JEEK PRI BRSE-018-V-J-JEEK PRI JET 170 IF Re-14 GR RE-18 OF RE-18 FOR Jet 170 IF Re-14 GR RE-18 OF RE-18 FOR Jet 170 IF RE-18 GR RE-18 FOR JET 170 IFFERS SETS IT LOT THEN SOTO 2008 ITS LEFERS SETS ITS LEFERS SETS ITS LEFERS SETS ITS LOT THEN SETS SETS ITS LEFERS SETS ITS LEFERS SETS ITS LEFERS SETS ITS LEFERS SETS ITS LOT THE SETS ITS LEFERS SETS ITS LEF

H:SOUND 0,0,0,0 185 D=2:6=INT(2&RND(1)+3):IF G=4 THEN D= 4 200 FORE 37,7:60800 INT(RND(1)&17,&10+50

00 300 ON X=205 G0T0 4000

See BOTO 117 1898 SPRPHICS 23:SETCOLOR 4,15,3:SETCOLO R 8,11,8:SETCOLOR 2,15,3 1885 STHRT=PEEK\SB0:HFEEK\SB1 M2S6+4 1888 STHRT=PEEK\SB0:HFEEK\SB1 M2S6+2 1818 PORE START-1-56:POKE START+2,2

1015 POKE START+149,851POKE START+150,PE EKKS601POKE START+151,PEEKS61 1017 POKE START+3,81POKE START+4,8 1020 COLOR 11PLOT 0,821DRAHTD 4,621DRAHT 0 4,1019POHTO 144,10

1045,10:DRAMTO 144,40:DRAMTO 154,40:ORAMTO 154,60: 1030 COLOR 1:PLOT 0,62:DRAMTO 0,30:ORAMT

0 134,90 1935 FLOT 139,70:0KAHTO 159,83:0RAHTO 13 4,93:0RAHTO 134,90 1040 COLOR 2:PLOT 34,40:DRAHTO 34,20:ORA

WHU 14,20 1043 POKE 763,1 1050 POSITION 14,40;XIO 18,#6,0,0,"S:"

1086 PLOT 80,80:DRAHIO 80,62 1085 PLOT 134,73:DRAHIO 134,83

1070 PLOT 34,40:OKANTO 54,40:PLOT 44,30: DRANTO 64,30:ORANTO 64,60:PLOT 54,30:DRA NTO 54,20

1068 PLOT 34,60:0RHWTO 54,60:DRAWTO 54,5 0:PLOT 44,40:DRAWTO 44,50 1890 PLOT 44,10:DRAWTO 44,20:PLOT 64,10: DRAWTO 54,20

1100 FLOT 34,80:UAHHTO 104,60 1110 PLOT 44,70:DRAHTO 54,70:PLOT 74,70: DRAHTO 74,50:ORAHTO 84,50

DESHITO 74,581 DERHITO 84,58 1120 BBRATO 84,381 PLOT 74,481 DERHITO 74,2 81 DERHITO 34,281 PLOT 84,581 DERHITO 34,58 1138 PLOT 94,181 SERARTO 94,381 PLOT 84,481 DERHITO 104,491 PLOT 104,281 DERHITO 104,381 PLOT 104,501 DERHITO 104,76

1140 PLOT 114,40:DRAHTO 114,50:PLOT 184, 70:DRAHTD 159,70:PLOT 140,60:DRAHTO 159, 50

60 1130 PLOT 124,60 укнятО 124,40 ОКЯННГО 13 4,40 ОКЯНТО 134,20 PLOT 124,20 ОКЯНТО 12 4,30 PLOT 134,70

1133 ОКАНТО 134,50: ДЕЛЬТО 146,50 1168 PLOT 34,80: ДКАНТО 34,50: ОКАНТО 14,5 1170 POSITION 14,80: РОКЕ 765,1: XIO 18,#6

1170 COSTTON 104,000 FORE 765,1:XIO 18,46 1150 FLOT 114,400 DENNITO 114,500 ORBANTO 10 4,30 FOSTTON 104,400 PORE 765,1:XIO 18,4

6,0,0,"S!" 1130 FuOT 60,00:DRAWIO 60,06 1200 FLOT 104,60:DKAMTO 164,50:ORRMTO 94 ,58

1210 POSITION 94,60:PONE 765,1:XIO 16,86 ,0.6,"S:" 1215 PLOT 8,78:DNHMTO 7,78:FLOT 14,88:DR AMTO 7,58

1220 PLOT 124,20: DRHATO 124,10: ORBATO 11 4,10

1230 FOSI:ion 114,28:FORE 765,:AIO 18,4 6,800,'S: 1240 PLOT 14,58:ORANTO 34,88:FLOT 14,48: DRANTO 34,48:PLOT 114,28:DRANTO 324,28:

DRAHTO 34,46:PLOT 114,20/DRAHTO 124,20 1245 PLOT 124,40:DRAHTO 114,40:PLOT 34,6 0:DRAHTO 104,60

0:ORANTO 104,50 1250 PLOT 126,70:ORANTO 126,80:PLOT 116, 80:ORANTO 116,30 1300 RETIRN

1500 GPAPHICS 17: SETCOLOR 4,15,15 1520 POKE 53246,5: POKE 53248,5

1530 POSITION 2,4:: #6,"TOO LATE---"
1535 FOR V=1 TO 3:SOUND 0,40,10,12:SOUND
1,150,10,12:FOR N=1 TO
200:NEXT W

1336 FOR S=0 TO 3.50UHO S.0.0.0INEXT S 1537 FOR H=1 TO S0:NEXT HINEXT U

1540 FOR H=1 TO 200:NEXT H 1550 POSITION 2,6:? #6;"YOU'RE OUT"

1560 POSITION 2,8:7 #6;"OF TIME!" 1562 FOR W=1 TO 500:NEXT W

1565 POSITION 2,10:7 #6; "Press trigger" 1570 POSITION 2,12:7 #6; "to restart" 1580 IF STRIG(0)=1 THEN 1580

1590 GOTO 20

1700 SOUNO 0,140,10,12:SOUND 1,30,2,12:F OR W=1 TO 150:NEXT H:SOUND 0,0,0,0:SOUND: 1,0,0,0

1718 GRAPHICS 17: SETCOLOR 4,8,12

1720 PORE 53248,5 1725 PORE 53249,5

1730 POSITION 2,4:2 #6;"YOU CAN'T STOP!"

1750 POSITION 2.6:7 #6;"KEEP MOUING!!"

1760 POSITION 2,8:? #6;" try again"

1780 POSITION 2,12: 7 #6; "PRESS TRIGGER" 1785 POSITION 3,10: 7 #6; TO RESTART"

1730 1F STRIG.0>=1 THEN 1790 1799 GOTO 26

2000 FORE 33248,5:FORE 33249,5 2005 SOUND 1,12,130,10:FOR H=1 TO 100:NE NT H:SOUND 1,0,0,0

2010 GRAPWICS 17:SETCOLOR 4,10,12 2020 POSITION 2,4:7 #6;"THE RADIATION" 2025 POSITION 2,6: #6,"IN THE WALLS"

2030 POSITION 2,3:1 #6;"GOT YOU!!!"
2035 FOR W=1 TO 500:NEAT H
2040 POSITION 2 10: 40-"DDG25 TRICOTOR

2040 POSITION 2,10: * #6; "PRESS TRIGGER" 2050 POSITION 2,12: 7 #6, "TO RESTRAT"

2090 IF STRIGGO == 1 THEN 2090 2100 GOTO 20

3000 REM DISPLAYLIST & TITLE 3020 GRAFHICS 2+16:SETCOLOR 4,0,12 3150 FOR Well TO 400:NEVT U

3150 FOR H=1 TO 400: NEXT H 3180 COLOR 2

3200 POSITION 6,5:? #6,"arriock" 3250 SOUND 0,200,10,15:SOUND 1,255,10,18 3260 SOUND 2,80,10,15:SOUND 3,150,10,15 3270 FOR H=1 TO 20:NEAT W



3290 FOR H=0 TO 3:50UND H.O.O.O:NEXT H 3295 FOR H=1 TO 500: NEXT H 3300 POSITION 2,3:7 #6; "PRESS TRIGGER TO

385 POSITION 7,11:1 #6,"START 3310 IF STRIG(0)=1 THEN 3310

3500 RETURN

4000 C=0: X=50: Y=95: HITCLR=53278 4001 POKE 53248,5

4002 A=PEEK(106)-24/POKE 54279,A/PMBASE=

4015 GRAPHICS 7+16/SETCOLOR 4,6,11/SETCO LOR 0,4,4/SETCOLOR 2,7,6 4020 START=PEEK(560)+PEEK(561)#256+4

4025 POKE START-1,66: POKE START+2,2 4630 POKE START+149,65: POKE START+150,PE EK(560): POKE START+151,PEEK(561)

4050 GOSUB 7000 4060 POKE 559,461 POKE 53277,31 POKE 53249

4070 FOR J=PMBASE+640 TO PMBASE+748: POKE

4880 POKE 705,54:FOR J=PMBASE+640+Y TO P MBASE+644+Y:READ A:PDKE J.A:NEXT J 4030 DATA 10,28,40,8,20

4100 RESTORE (4090)

4102 E=0: POKE 623.4 4103 POKE HITCLR.0

4105 A=STICK(0) 4110 E=E+1: IF E>70 THEN 1700

4150 IF R=15 THEN 4105 4155 C=C+1/IF C>250 THEN 1500

4160 IF A=9 OR A=10 OR A=11 THEN X=X-21P OKE 53249.X 4170 IF A=5 OR A=6 OR A=7 THEN X=X+2: POK

4180 IF A=5 GR A=13 OR A=9 THEN FOR J=10 TO 0 STEP -1: POKE PRIBASE+640+Y+J.PEEK(F

TBASE+638+Y+J > NEXT J: Y=Y+2 4190 IF A=6 OR A=14 OR A=10 THEN FOR J=8 TO 10: POKE PMBASE+638+V+J.PEEK/PMBASE+6 40+Y+J): NEXT J: Y=Y-2

4200 L=PEEK(53253): IF L(>0 THEN 2000 4220 SOUND 0,140,10,4: FOR H=1 TO 5: NEXT H: SOUND 0.0.0.0

4300 D=3:6=INT(2*RND(1)+3): IF G=4 THEN D 4328 GOSUB INT(RND(1)#26)#10+8900

4350 IF YK30 THEN GOTO 7500 4500 GOTO 4102

5000 COLOR D:PLOT 14,41: DRAHTO 14,49: RET

5010 COLOR D: PLOT 34,41: DRHHTO 34,49: RET URN 5020 COLDR D:PLOT 54,41:DRAHTO 54,49:RET URN

5030 COLOR D: PLOT 55,60: DRAHTO 63,60: RET HPN

5040 COLOR D: PLOT 65,40: DRAHTO 73,40: RET

5050 COLOR O: PLOT 74,41: DRAHTO 74,49: RFT 5000 COLOR D. PLÚT 35,30/DRÁMTÚ 43,30/RET

5070 COLOR D: PLOT 44,21: DR##TO 44,23: RET HRN

5030 COLOR DIPLOT 64,21/DRAHTO 64,29:RET 5030 COLOR D:PLUT 84,51:DRAHTO 84,53:RET

URN 5100 COLOR D:PLOT 1:5,40:DAHNTO 123,40:R

5110 COLOR D: PLOT 124,31: ORAHTD 124,39:R

5128 COLOR D:FLOT 134,41:DAMHTO 134,49:R 5130 COLOR D: PLOT 135,40: DRAHTO 143,40: R

5140 COLOR 0:PLOT 124,61/DRAWIG 124,63/R

5150 COLOR DIPLOT 85,20:DRAWTO 33,20:RET 5160 COLOR D:PLOT 105,20:0RHm10 113,20:R

7000 REM MAZE 2

7005 COLOR 1

7010 PLOT 0.70: DRAHTO 4,70: DRAHTO 4,60: D RAHTD 4,20 7020 ORAHTO 40,20: DRAHTO 40,10: ORAHTO 14 0,10: DRAHTO 140,50: DRAHTO 152,50

7025 PLOT 20,50: DROHTO 20,86: ORANTO 60,8 7030 PLOT 0,30:ORANTO 14,80:ORANTO 14,50 :PLOT 60,86:DRANTO 60,88:DRANTO 84,88:DR ANTO 100,76:DRANTO 110,76

7035 PLOT 82,86/DRANTO 82,88:PLOT 130,64 :DRANTO 130,86

7040 PLOT 120,56: DRAHTO 120,36: DRAHTO 15 4,86: DRAHTO 154,76: BRAHTO 156,76 7050 ORANTO 150,60:DRANTO 150,70 159,40:DRANTO 150,40:DRANTO 150,10:DRANTO O 159,10

7055 COLOR 3 7060 PLOT 120,86:DRAHTO 120,76:DRAHTO 11 0,76

7065 POKE 765,2

7070 POSITION 110,86:XIO 18,#6,0,0,"SI" 7080 PLOT 20,50: DRAHTO 20,30: DRAHTO 14,3

7685 POKE 765,2 7090 POSITION 14,50:XIG 18,#6,0,0,"S:"

7100 PLOT 20,30: DRAHTO 30,30: PLOT 20,50: DRAHTO 30,50: PLOT 30,40: DRAHTO 40,40: DRA WTO 40,50 7103 PLOT 2,60:PLOT 140,58:DRAHTO 140,60:DRAHTO 14 140,34:DRAHTO 144,34

7119 PLOT 30,60: DRAHTO 60,60: DRAHTO 60,5



0:DRANTD 80,50:PLOT 70,60:DRANTO 80,60 7115 PLOT 46,78:DRAHTO 46,78:PLOT 138,48 :DRAHTO 138,48:PLOT 140,76:DRAHTO 144,78 7120 PLOT 50,20: DRAWTO 50,50: PLOT 40,30: DRAWTD 50,30

7125 FLOT 148,70: DRAWTD 150,70: PLDT 150, 7130 PLOT 80,40: DRHHTO 62,30: DRAHTD 60,3

7135 FORE 765,2

7140 PDSITION 60,40:XID 18,#6,0,0,"S:" 7150 PLOT 60,76; DRANTO 60,70; DRANTO 30,2

7155 POKE 765 2 7160 PDSITION 30.76:XID 18.#6.0.0,"S:"

7170 PLDT 60,10:DRAHTO 60,20:DRAHTO 65,2 0:DRAHTO 50,28:DRAHTO 80,16:DRAHTO 100,1 6:DRAHTO 100,26 7175 PLOT 125,46: DRAWTO 125,50

7180 PLOT 100,241 DRAHTO 120,24: DRAHTO 12 0,18: PLOT 90,26: DRAHTO 90,40: PLDT 90,60: DRAHTO 90,78

7190 PLOT 80,78:DRAHTO 90,70:DRAHTO 70,7

13G POKE 765,2

7200 POSITION 70.78:XID 18.86.0.0."S:" 7216 PLOT 110,46:DRAHTO 110,34:DRAHTO 13 0,34:DRAHTO 130,20:PLOT 140,46:DRAHTO 12 0,46:DRAHTO 120,40

7215 PLDT 130,34:DRAHTO 130,38 7220 PLOT 90,56:DRAHTO 100,50:PLOT 100,3 8:DRAHTD 100,56:PLOT 150,70:DRAHTD 148,7

7230 FLOT 110,66: DRAWTO 110,36: DRAWTD 10

7235 POKE 765,2 7240 POSITION 100,66:XID 18,#6,0,0,"S:"

7250 PLDT 140,76: DRAWTD 134,60: DRAWTD 13 7255 POKE 765,2

7260 PDSITION 130.76:XID 18.#6.0.0."S:" 7270 PLDT 140,60:DRAHTD 132,56:DRAHTD 13

7275 PDKE 765,2

7280 PDSITION 130,66: XID 18,86,0,0,"S:" 7296 PLOT 14,50: DRANTO 20,50: PLOT 30,76: DRANTO 60,76: PLOT 70,78: DRANTO 80,78 7300 PLDT 100,66: DRAHTO 110,66: PLOT 110, 86: DRAHTO 120,86: PLOT 60,40: DRAHTD 80,40

7319 PLDT 139,76; DRAWTD 140,76 7400 RETURN

7500 GRAPHICS 17: SETCDLDR 4,10,12 7505 POKE 53249,5

7510 POSITION 2,4:? #6; "CONGRATULATIONS!

7520 FOR W=1 TO 300: NEXT H 7530 POSITION 4,8:7 #6;"YOU ESCAPED -- " 7540 FOR H=1 TD 300: NEXT H

7550 PDSITION 3,12:7 #6; "Press trigger" 7560 POSITION 4,13: ? #6; "to restart" 7570 IF STRIG(0)=1 THEN 7570

7688 60TO 5

8000 CDLOR D: PLOT 21,60: DRAWTD 29,60: RET 8010 COLOR D:PLDT 30,61:DRAWTG 30,69:RET 8020 COLOR B.PLOT 31,50:000010 39,50:RET HRN

3030 COLOR D:PLOT 30,31.0RAHT0 30,39:RET 8046 COLOR D:PLOT 40,31:D68#T0 40,39:RET URN

8050 COLOR B:PLOT 51,20:GRAHTO 53,20:RET 8060 COLOR DIPLOT 50,51:DRAWTO 30,53:RET HIRN

8070 COLOR D: PLOT 61,70: GRAHTO 63,70: RET JARN 8080 COLOR D:PLOT 80,29:DRANTO 80,39:RET

8090 CDLOR D:PLDT 60,41:DRAHTD 80,49:RET 8100 COLOR D:PLOT 30,51:ORWHTD 80,59:RET 8110 COLDS DIPLOT 70,79: DRANTO 70,87: RET

URN 8120 COLOR D:PLOT 81,60:DRAMTD 89,60:RET

8130 CDLOR D:PLOT 90,41:DRAHTO 90,49:RET 8140 COLOR D:PLOT 100,29:DRANTO 100,37:R

8150 COLOR B: PLOT 111,46: DRAWTD 119,46: R 8160 COLOR D:PLOT 111,56:DRAWTD 119,56:R ETURN

8170 COLDR D:PLDT 140,51: DRAWTO 140,59:R ETURN SISO COLOR DIPLOT 140,77: DROATO 140,85:R

8190 COLOR D:PLOT 141,30:DRAWTD 149,30:R S2D0 CDLOR D:PLOT 110,47:DRAHTD 110,55:R

8210 COLOR D:PLOT 141,10:ORAHTO 149,10:R FTURN 8220 COLDR D:PLOT 50,77:DRAHTO 50,85:RET

8230 COLOR DIPLOT 30,771 BRAHTD 30,851 RET IEN 8240 COLOR D:PLDT 60,61:DRAWTD 60,69:RET 8250 COLOR D: PLDT 131,20: DRAWTO 139,20: R

ETURN 8300 REM DONE

SOFTCELL LTD plays Santa Claus this year to Atari 400* owners



We are very excited to announce the arrival of a full-stroke typewriter keyboard which completely replaces the Atari 400° touch-sensitive keyboard. Extremely easy to install, it uses proper typewriter keys, not calculator keys, and features all Atari* function keys at an amazingly low retail price of £79.95.

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Glutton ie probably not a game to be pleyed between meals. You take the part of a Billy Bunter character and are ewarded points for the most dots you can eet. Those are laid out in a Pecman type maze and of course you soon realise that you are not alone in the labyrinth!

There is something spooky in there with you, ectually thore's three of them and they are as hungry for you as you are for the edible dots

When the pleyer eats one of the larger dots on the course, he is transformed from the hunted to the honter - making his pursuers change their shape and zun awey.

Fortunetely, for the hungry pleyer they also revert to half their normal pece. But watch out when they start to flash it'e e sure sign that your meal is about to leap off the plete and etart to feel e little hongry itself. It's time to start running again.

The program keeps e high score which is stored. allowing the program to be re-run without clearing the high score memory.

And it also makes use of e short mechine code program which loads the contents off the screen eo the maze can be drawn from memory rather than the tedious reading DATA.

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Again you call up the Galactic Chart and plot a course to your starbase. You dock, and your damage is repaired, your energy banks replenished. Back you go to re-engage the enemy.

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A convoy of trucks is ferrying vital medical supplies through the arid desert. You are flying escort in your helicopter cunship.

Suddenly a flight of enemy machines shows up on your long range scanner and you head in to attack with your laser cannon. They reply with deadly multi-warhead missiles. You start with two choppers in reserve, and add another for each 10,000 points scored, up to a maximum of six.

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You'll need to move very fast to destroy this enemy, for the more you shoot down, the faster they get. So even through your chopper is really manoewarble (a touch on the Joystick sends: tho an instantaneous 180° turn) you'll find the opposing helicophers and jets every difficult to defeat. It's by no means easy, it requires lots of strategy and lighting reflexes and that's why "Chopper Command" is destined to become one of the alt time yidoo game classics.

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In those days the galaxy knew

HF best way to learn history is from the crusted carapace of a Tierthan. All the Shell Tribes share the same lysical tones which turn Five speak into e language nimost

capable of posity, but the Testha, being Machen - dela memonsers - can provide the Juliest detail.

Perhapa it is just because I Itrs! heard the story of The Seventh Empire baside Treithen fires that I feel this way, but I still ramember the night when their fleet nut down to the places beyond our citres.

Hakub I is the unromentic name for our planet, the only mhabitable plenet in the Hakub System but rich in heavy metal. and one of the first "greenhouse" planets to be sended.

That moon phase the word had gene out that a Tiarthan Fleet had landed to trade and all the local merchants had rushed to great them - they had come from a nch system.

I was taken out to see them on the third orabl. There was no current wer m the system, and an egger growd surrounded their lives as the word sweet through the plain and some 30 Traithana came out to recount the tale.

Somagna basida me opmied out a group of Bebashr Piretas, whese craft lended close by and who were mineling among us to hear the tale. Now I wonder how it was they waren't run off tha planet, then I merely drenk in the nch detail of the story telling and lost myself to the sage of D'Taan and har Rabel Empira

She belonged to a human tribe - the Jellied One's ex the hardskinnad Shell People still call us - and was a lowly scientist on en axploration ship based in the Fenus Systam

only five empires, communication between them was rare as was miarstallar travel - and only a handful of reterreters understood the now widespread Fivespeak longuage

Stellar anerov was the currancy than and it was in the hands of the Bloodline Empire named after the spacres which dominated both that amoure and the energy reserves. The Blood-Ime was the name given to a tribe of smooth-skinned reptiloids who could reproduce so occuretely - call-by-cell they claimed - that they were one of the few societies in the known galaxy never to have developed

clones / The Bloodine had bean the first colonisers of the galaxy and had monopolised stallar energy reserves on the few planets which housed Amethyst Empire them. These were usually the hot

heavily atmosphered greenhouse effect plenets and lew of these could be developed even by the hardy and technologically advanced Bloodine So, stellar energy was m short

aupply and that way the Blood-Ima claimed control over the mter-system travel and held the other four empires in check. The Shell Papple, evolving

swiftly out of their natural amoba bious environments, were probably the biggast force in the collectron of species known as the Water Empire.

Wa poor humans being loo short-lived to achieve much as spece travellers had still bean able to establish colonies across great tracts of space using marcanary-controlled craft and

suspended animation and had found a smell yorce among the voice creatures concerned with the We were highly rated as col-

onrears as the least volatile of from then own environment and



races and also for our austability to colonise the group-B axvannatmosphere planets which produced the small amethyst-type gerna used to harneas the stellar energy Ours was nicknamed the

The smallest empus was the province of the sun beings. Drily two species found their way In

prominence through soler power and the Sun Empire was among the most alusive in the galaxy. The largest empire in sheet weight of numbers were those

from the frozen or dead planets who were aguraged to surviva environments where even the most lachnologically capable bemox would not attenue to mine or sat up colonies. Many creelures had avolved

in the Dead Empire but they were universally slow-writed and would have doubtless bean amaloamated by a more gosheed avail if any had seen much use to be made of the dead plenata. None did and so by dalault the Dand Empire came into axistence and earned a galactic

So each ampire found its own nrcha m the galactic system. their depandents seldom straying never indulging in travel beyond their own solar system without the grudgingly given energy of the Bloodine

Daspite the seeming nch variety of creatures, there was still much of the galaxy which was without mhabitants or prospects Dryarse as galactic kind was, it still only occupied a nerrow band of planel and star systems Ol these the greenhouse

effect planets with their ability to produce the stellar energy and rich seams of heavier metals were regarded the despest loss. The Sun Polyos were a wall known but little myestigated phanomens Consisting of little more than a few cells they mhabitaled the very edge of planetary atmospheres in their trillions.

D'Taan was investigating them for her trebe, coloorsis of a Bloodine controlled solar sys-Iem Ittle importance was attoched to har work, she hoped to discover how the creatures had managed such a widespread distribution over the galaxy

A controlled colony was set up as part of her expariments on a new planat - just beyond the life nno - too close to its star to have anythma really worthy of the name atmosphere

it. D'Tean had chosen a creation generation to transfer and when called back five soler years later,

the plenet, classified as Solar Besert Type-B had prown cloud COMBI

A shuttle sent to the planat's surface came down in the middle of a min storm and, while the heat wee such that only a sunbaing could have stood it unsuited the atmosphere was doing its work Of the polyps them was no sign - they had gone into catatonic generation five further years in the Treez-

and died nut. D'Taan was quick to reelise the importance of the discovery. craft was quicker. Ha stopped war and rivelry. Pirecy to rite. the news being keyed into the ship computer which was transsetting all experimental data to the nearest space station, from where it would be sent to Bloodline detehanks

D Taen's work had told har something about the polyps' lour generation evolution cycle. She estimated a Creation Repaisting

occured every 50 solar years. And her other experiments had shown that only creation generation polygs actually snrvivad the transmission to a new plenet - end then only for a few

21099 A brief discussion with Bezal convinced D'Tean that the Blooding would put a stop to her work to preserve their galactic control. They had to breek the bounds of the Bloodina Empira and make for an uninhabited systam with polyps of a different ceneration. They needed steller energy quickly

The raid on the Bloodins space station in the Jenus systam was when pirecy first came

home to roost in the galaxy, Poor to that, the stellar energy had been under such control that none could make good their ascape to a new system. Jenus was not an energy system but it did heve a small sneply which Bezel knew was kapt on the station for pessing inter-system Bloodline freighters.

It was only Bazel's inside knowledge of the station which made the raid opssible. As it was there was just arrough power to rush them into the neighbouring system of Vapoz.

Uninhabitable with lost planets, said the exploration charts. But it had everything D'Tean needed to continue her next experiment, polyos had been charted on a dead plenet.

As luck would have l and there was an unstable mass has folded in on itself, the Stars She cutlined her experipreschouse aftect class C planetoid closest to the sun nch in stellar enemy which no

the exploration ship one could currently mine Armed with a cryoganic chamber and a desperate hoos that by the time an intrisystem Bloodline couser reached Jenus, their trail would be cold. Bezel put the craft in orbit around the polyp's planet and the crew to sleep until D Tean's estimated creation genaration come mund.

The creation generation reached maturity, was duly transfered to Vepoz 1 and after ar'. Bazal and D'Taan had a stable planet shiplded from the

density and pravitational pull of effects on space and they were

evoided as navigational hazards Could they so distort space as to allow travel through to other

Neutron Stars. D'Tean's mind strock upon an ancient hypothesis. Space was curved but how curved? Could them be eress which pulled by the distortion almost doubled back on themselves

If you looked at the universe as a ring with two planes then a simple twist would burn that non into a mobius strip with just on a

Take that twist into a third of

The Soven Empires are torn by raiding on everydey part of in-terstellar life and loyalty to soything boyond your owe tribe

When our Seven Empires parce guts undowery in February you will be challeaged to control one of the warrieg tribes, to reb, trade and hattle you way to victory over up to 10.000 other *C&VG* read plue the editor.

The name will continue for sun's rays by a growing atmos-

phere and that aloar of all life. weter. But more important they had access to stellar anarov The Pureta Empire was born over the next years, fuelled by stellar energy and run by Bazel, it struck where it wanted turned two lurther planets into stellar supporters end ren the other emoires and the Blooding (80-

nad D'Taan split from Bezel, who threatened to rule the galaxy in his lifetime and continued 2 har expariments with polyps while on the run from the

Riondline and most of the other ampires, stirred up by her former colleague's atrocitus There were many onestions

still unanswered about polyps but the two most important for D'Taan were why a colony artilicially transferred to a new planet always died out and her priginal puzzle, how could the polyps be so widespread over the galaxy

The answer lay in the pattern of distribution which she mapped out from stolen email e surveys of the charted systems. Polya colonies always seemed to spread outwards from a Neutron Star

Neutron Sters, and sters whose

system.

many months but each month will have one wisner who has uchlayed the highest score. It's e game of pure skill, simple to enter but difficult to assess inclically and it's all reader eted by computer at our end. The top scorer of the first coath will win a Cotour Genie dicrecoraputer and it will only cost you a storen each month to enter. You can also check your own score. An entry form to se page live — so get to

evan lourth dimension and then what would you have? black holes rent the fabric of the universe, perhaps a Nention Ster was also capable of this, pulling great lolds of universal labno around it end parkags matter could punch its way through to a part of the galaxy which was light years away by normal

meens. Seven years D'Taen spant on the problem before a Bloodline ship finelly tracked down her craft and seized herself and the crew She was frozen and taken back to Grakte, whose voice was which sold by Bazal's pirates. were now at war with ona

She was taken into the presance of mighty lizard who had spoken for the Blooding Empire for over night generations of himnell, no one but Bloodlinars react to the data the tribes affilithemselvas knowing when one Grakta died and the next took his placa. With him was a token representative of the Dead Empire, - his only current ally an ice warrior there as a symbol,

racordad. Death was the sentence for unleashing anarchy on the galaxy and creeting the sixth Pirate Empire. But D'Taan still and marchants, of which I am energy has been spent and the had an ace to play. Gateway now one

ments to e distrelieving Grekte these dead suns caused strange, and showed him a way to delent Bazel's ambitions

Brekta scoffed but she persayered and demended two things in return for the secret of the Gatewaya

across the known palexy She wanted an empire heiself, named after her and devoted to science. And she wanted the secret of the Gateways to be shared across the empires an that none would have the advantage over the other that the Bloodling had anjoyed for so

"No", was Grakta's answar. "You die and we hight the piretee as bast we can." They were the lest words he spoke as an ice warnor's tribal axa buried itself deep in his back it was the only time that an emissary from thosa Dead Planet's had acted so swiftly and so decisively

The ice warrior turned to D'Teap: "You shall have your request end Bezel shall lose his edvantage over its"

The Dead Empire armed with the science of D'Tean's newfound Empire and backed by the Sun Empire's solei troops, mut and dafeated Bezel at a mighty battle in the Yuses system.

A conquered Bezel sought out his conguerors end the Treaty of the Saven Empires was sworn. It split the palexy's habitable systems between all savan, it rastricted any triba to no more than seven space fleets, so that no ermy might aver again grow to threaten the whole amoura and it allowed for the inevitable bickering and warfare which would break out.

Most important was the Dead Empire's insistence that the ampires he disbanded and that loudast of the Five Empires the peoples of the galaxy revert to the tribes and species from which thay had come There was compromise and the empires ended up as fignre heads, dastinad in the course of time to be given into the hands of seven computer controlled ships which

ated to planets in each empire land into tham. That was the sege of D'Teen, who died belore the battle of Yuses, as told to ma by tha Treithe one magical night on the whose name was never asked or

plains of Hakub I. Fitting because D'Tean's sun polyos seeded the atmosphere of Hakub I releasing its stallar energy to the miners and colonisars



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THE SANITY CLAUSE

My senity now partially restored with some help from our readers, I leel it is about time to tell all about Aaylum

This name by Frank Corr. like Doethmazo, testures a graphic maze with movement through it controlled by arrew

keys, combined with typed commends in English.

However, there the similarity to Doathmaze ends. Asylum accopts whole seniences rether than two-word commends. The corridors are lined with doors which can be seen to be open or

Most of the doors are locked. Some locks can be picked, others unlocked by e specific key. Guerds can be seen barring the way of stralegic points - try to pass them at your perill

When the come commences the player limds himself locked in a cell with

I offen net desperate jetters from readers for a solution to a particular problem in an Adventure which is battling them and preventing further exploration.

Whilst I am happy to holp - It I cant - no doubt many moders would rether not see the solution, preferring to battle on themselvos. Therefore i have written some tips in code to help solve the problems that seem to be bugging most Adventurers who write in.

To docode the solutions, type in and run the decoding program provided. The program wiff cell for lines of caded text to be input. When this has all been entered, typo 'E'. After a short dalay, tho message will be displayed in clear lenguage on the screen.

CTR TREE PROPERTY & VICE CAPE INVIE.

CTR TREE PROPERTY & VICE CAPELLY

CT THE TENNE THE PERSON IN THE PE

THE TEN THE TRANSPORT OF THE THE THE TEN THE T

nothing but a hend-grenade to keep him company. You It handled wrongly it WILL blow upl

There is nothing for it but to find a way to escape from the ceil. Should the player be receptured, he will find he must escape egain, this time by a disterest method

Then what? How is it possible to break turther into the game with those guards on each corner? This is the point of which I nearly went med a lew months anni I was not the only one - Steve Gemble from Sheffiold wrote in desperetion asking me to pess on any usoful tips i might receive from helpful reedors. He evon offered to take out an additional mortgage on his house to pay for such

advical Foar not. Stevel Computer & Video Games readers have come to our rescuel R. W. Patterson of Sitcoates School In Wrenthorpo suggested that the guard aboutd he approached with the confidence of a hedgehog trying to overturn a spoeding juggernaut.

Tiptoe, turn and face the guard and nunch him, was his advice. Then frisk him, he suggested, and watch the startling metumorphosis as he turns into e box containing useful objects? Well, the last hit was DK, but the first few moves didn't quito seom to work out.

Mr P. A. Etils of Wrexham was more exalicit in how to get to the irisking stage. For reedors who are as desperate es Stevo and myself, I have encoded the Instructions - to project those of sound mind in a Bassc program listing. Type it in and run It to obtain the tips

Heving successfully got post the guard and armed with a brass koy, i manogod to time an immete who proved to be an expert locksmith. The trouble is, he was elso a chain smoker, and got guile nesty without a requier 'fix'. I was getting on reasonably well with my new tound friend when suddonly and without warning he nushed me into a maze.

Mr. Ellis has obviously not beyond this point as he ended his letter with meaningloss questions like "How do you get the henger off the inmale after the second maze?"

Never mind the second meze, Mr. Ellis, how do you get out of the tirst one? Mr. Fills didn't tell mo any more for tear oi spolling my game!!.

Eventually I found my ewn lavourite anding! Try this one Steve, and your worries will be over. Ge into the first door on the right from the lett-hend entrance to the guards guerters. There you will be wolcomed in for a lobotomy.

Before you can decline, the screen will clear with a message: 'You ero now very celm"

Asylum runs on a TRS-80 or Video Gonto in 15k

In suggesting ways that an Advanture might be programmed, I have quite frequently used FOR-NEXT loops to scan strings and errays to identify words For example where XS is the string to be searched and YS is the trial

10 J=0: For I = I to LEN (X\$) STEP LEN (YS)

20 IF MIDS (XS. I, 3) = YS THEN J = 1: 100 REM VALID WORD STARTS AT THE ITH POSN

If the word is found, control jumps out of the FOR NEXT loop to line 100, This usually causes no problems on most machines, although it can corrupt

The stack normally concerns only the Assembly language programmer, but it can get corrupted from Basic, causing

the "stack"

unpredictable results. You will probably only get these problems if the loops are nested and

buried in subroutines, but the extent to which you can 'get away with it' will also depend on which machine you have. For instance, the BBC micro will not

permit a nump out unless the FOR vanable is equated to the TO value, whereas the TRS-80 is much more easy going. The whole point of jumping out, of course, is that once the required value

has been identified, no additional time is required to complete the loop, thus speeding up program execution If you run into FOR-NEXT problems that are apparently inexplicable, ex-

amine your coding to see if the loop is being exited before completion. If soyou may have to revise your program thus:

10 I = 0 : FOR I = 1 TO LEN(X\$) STEP LEN(YS) 20 IF MIDS(XS, 1, 3) = YS THEN J= 1

30 NEXT : GOTO 100 100 REM VALID WORD STARTS AT THE JTH POS'N

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Let's see what proverbs we can devise for a simple extension to the program outlined in the previous Go articles. We got as far as random selection of a move within a set of boundary intersections.

Each boundary intersection is defined as being next (considering up to the nearest eight intersections) to both a black and a white stone -

see figure 1. "Don't play where you can get captured next move" is rather an obvious maxim. All the points marked A fall into this category and therefore should be eliminated from the set of boundary intersections.

Then there is the well known proverb - "Your best play is often your opponent's best play". The logical converse of this proverb is Your worst play is often your opponent's worst play". By this token the

point marked B should also be eliminated - if it's a bad move for gain more liberties. your opponent it's a bad move for

YOU Having eliminated some bad moves, let us now move on to rank have a choice of optimising for defence or for attack. Since you are never so vulnerable as when you attack inexpertly, and considering our program's capabilities (so far)

we shall tackle defence first. A main tactic of attack is to isolate your opponent's groups by placing stones where those groups would fewer liberties (adjacent vacant in- appropriate action is taken.

tersections) and so are easier to kill. The moves to isolate stones are called "cuts" and "peeps". The white stone at E7 in figure 1 is an example of a peep.

A further move by white at E8 would seriously threaten the life of the four black stones to the left. A black stone placed at B2 is an example of a cut.

It separates the one white stone from the two above. "Block peeps and cuts" is advice well worth taking. In our defensive posture we will give such moves priority.

Even though a group might be cut off from another, it can still make territory and avoid capture if it gains enough liberties. Thus we should try to observe the proverb

The rules of play are very simple so you might expect that a few golden principles vould anoble a computer program siny wall. Not so! Nevertholoss there a hundreds of books on how to play Go nuncines of cooks on now so pay ou a fair number of them, English transia-liens from the original Japanose. So surely it must be a matter of transforring the book knowledge into the computer and key prestol

and key presibl
The trouble is that the provents, maxime and hints are all couched in far from
oncertal term. After the proven's concertal
term. After the proven's strength
away from your opponent's strength
How do you judge the strength of your
opponent's position? And than there are
the inevitable acceptions to the rule is
the level strength of your
of them all is "Bont follow Go provents
ablanced"

- "Maximise the liberties of your groups". We can do this by awarding higher priority to moves that

Even with these proverbs, carefully selected for ease of implementation, there still remains a fair amount of design acumen needed the remaining possibilities. We to keep the programming simple

and efficient. The selection table defines a pattern recognition method which falls short of obeying the proverbs to perfection but does cover most insticut

The intersections next to each boundary intersection are examined to see which is the first otherwise join. Small groups have pattern to match and then the

For example we could hold the



first pattern as a byte string with values representing the matching instructions W, N/B, W, X, N/B, X,

Starting with North and proceeding in a clockwise direction each intersection is matched against the appropriate instruction. If all succeed i.e. North holds a white stone, North-East does not hold a black stone etc., the appropriate action is taken.

At the first failure the next pattern must be examined or at least the same pattern in the next of its four orientations. This can be done by starting with the East intersection. Note that N/B and N/W instructions include off board imaginary intersections so that points at the edge of the board can be matched against the same patterns.

Thus N/B means white, vacant or off board, and N/W means black. vacant or off board. By matching the patterns in this fashion it is possible

to hold all the patterns in 88 bytes. Figure 2 shows the final rankings.

Selection Table Ellminate Irom N/E X selection NA. D Eliminate selection × R ¥ Priority Prioritylibortios 146 B Priority= 2+ liberties Priority=

> B must be black % mustn't be black W must be white Yamustn't be white X don't care

libertles

Priority=

Hbertles

NOTES Take 1st match in strict order 2. 1/2 1/2 include off board intersections

MACHINE CODE

TRY THE GO FASTER CODE

Home computers are designed to make it easy for us to type in, list, edit, save, load, and run Basic pro-CERTIFIS.

It is so easy to use Basic on these machines that we need a very good reason to take the trouble of using any other programming language.

The most common reason for getting away from Basic is that it is too

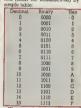
We can use the same idea with other numbers than 10; if we use 2 instead of 10 we only need two digits, 0 and 1, and the positions of the dients, counting from the right represent units, twos, fours, eachts. sixteens, etc. each position counting for twice as much as the position immediately to the right. Thus, the binary number 11001011 means one 128, plus one 64, plus no 32s, plus no 16s, plus one 8, plus no 4s, plus one 2 plus one 1, which works out to the decimal number 203.

We can convert numbers from binary to decimal as in the example Reading the column of remainders from bottom to top gives 11001011 the binary equivalent of the decimal number 203

These strings of binary digits (or bits) are not easy to work with; we generally need to use binary numbers 8 or 16 bits long, and it is very difficult to remember them and to copy them correctly. To get numbers that are conveniently short we generally use hexadecimal or base 16 mimbers. In base 16 we need 16 digits, from 0 to 18 and we use the letters A to F for the digit values from 10 to 16

The digits have positional values as in decimal and binary, but this time the values are multiplied by 16 as we move to the left. To take an example, the hexadecimal number 1A30 means one 4096 plus ten 256s plus three 16s plus no ls. which works out to 6704 in decimal

For numbers up to decimal 18 we can convert between binary and hex (short for hexadecimal) by a



We can also use this table in converting larger numbers between binary and hex.

To convert from hex to binary we simply replace each hex digit by the four binary digits from the table, for example, hex 1A30 becomes binary 0001101000110000. To convert from binary to hex, we divide the binary number into groups of four digits, from the right, and replace each group by the corresponding hex digit, for example binary 11001011 gives the two groups 1100 and 1011, so the hex equivalent is CB.



grephics in interactive action games, the calculation of the computer's move in complicated strategy games, and the searching of large amounts of data in Adventure-type games are just a few examples.

The fastest response that can be obtained from a computer comes from machine code, but before we look at what this means we need a little background information on number systems and the internal organisation of a computer.

With ordinary decimal numbers. we use a positional principle in order to represent numbers of any size by combinations of 10 different digits, 0, 1, 2, ..., 9. The amount a digit contributes to the number depends on the position of the digit; the rightmost digit represents units. the next digit to the left represents los, the next digit to that represents hundreds, and so on. The decimal number 203 thus means two hundreds plus no 10s plus three units. BY TED BALL

above, by adding the position values for the 1s in the binary number. To convert from decimal to binary we divide by 2, recording the result and remainder, and repeat the process on the result until we reach zero; the remainders in reserve order give the binary number. To illustrate this, let us look at the conversion of decimal 203 to hmary

203 divided by 2 gives 101, remainder 1 101 divided by 2 gives 50, remain-

der 1 50 divided by 2 gives 25, remainder 0 25 divided by 2 gives 12, remain-

der 1 12 divided by 2 gives 6. remainder 0

6 divided by 2 gives 3, remainder 0 3 divided by 2 gives 1. remain-

der 1 1 divided by 2 gives 0. remainder 1

Because of this direct conversion we can regard hexadecimal notation as an abbreviation for binary, and instead of 8 bit or 16 bit binary we can use 2 digit or 4 digit hex, which is much easier to use.

If we now look at the way a computer system is organised we can see why binary numbers are used. Figure 1 is a simple block diagram of a computer system CPU which

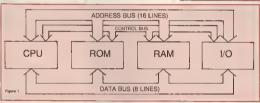
stands for Central Processing Unit.
This is the part of the computer that does all the calculations and in a microcomputer the CPU is a single integrated circuit called a microprocessor.

operated by the presence or absence of a voltage. We can thus represent the data bus by an 8-bit binary number and the address bus by a 16-bit binary number, where a 1 means there is a voltage on the line and a 0 means there is no voltage on the line.

Machine code programs are actually patterns of Is and Os in the memory, which we represent as binary numbers (or in abbreviated form as hexadecimal numbers). The processor can only work with these binary numbers, but it is almost impossible for human beings to do

To show what assembly language looks like and to see how completely different the three processors

	6502
A902	LDA #2
18	CLC
6902	ADC #2
8D0010	STA \$1000
	Z80
3E02	LD A, 2
C602	ADD A, 2
320010	LD (1000H), A
	6809
B602	LDA #2
6B02	ADDA #2
B71000	00012 ATS



ROM is Ready-Only Memory, and is used for permanent storage of programs and data; the Basic interpreter and all the control programs that make the computer work are stored in ROM

RAM stands for Random Access Memory, the name does not describe the most important point, that it's possible to write new programs and data into the RAM. I/O stands for input/Output, the connections between the computer and the outside world: Keyboard, TV display, tape recorder, printer.

The various parts of the computer are joined into a single system by three sets of connections, the Control bus (which we can ignore as it cannot be affected by programming), the Address bus, and the Data bus (a bus is just a group of connections).

The home computers we are dealing with have eight data line and 16 address lines which are We actually write our programs in a language that has meaningful names for the machine instructions and allows us to use meaningful names for our data, then we translate into the binary numbers the

processor needs.

The meaningful language is called assembly language or assembler, a program written in assembly language is called source code and the translation of the source code into binary or hex is called object

code
There are many microprocessors, each having its own
machine code and assembly lanquage, but only three are used in
home computers the 5932 (Fet, Appie, Acom, Atom, Vic-20 and BEO
Micro), the 230 (2389) (2381), ZX
Spectrum, Sharp M2801, TRS-50),
TSS-50 (2010), Computer and the
Dragon). We will be looking at all
three in detail later.

are, let us look at a simple program to add 2 and 2.

The object code (in hex) is on the left and the source code on the

In all three programs the same principle is used; load the number 2 into the processor, add 2, and finally store the result in memory location 1000 hex.

There are, however, several differences in the details of the source code

Because the assembly languages are so different you will have to stick to learning just the one for the computer you have.

You will need a text book to refer to the precise details of the assembly language and the corresponding machine code.

There are many books available, some dealing with a particular model of computer and others dealing with the microprocessor without reference to any particular model.

PRACTICAL PROGRAMMING

THE SEARCH FOR A GOOD STRATEGY

I have been looking at a table for a simple game. The game consists of two players, A and B, independently choosing one of the numbers I, 2, 3. If they choose the same number B wins the amount of the chosen number otherwise A wins the amount of his number. This is equivalent to A choosing a row and B choosing a column from table one.



There is no obvious way of finding a good strategy for playing the game, and the mathematics for solving the problem is quite complicated. However, it is not difficult to write a program that will learn to improve its performance.

The best way of playing this type of game is for A and B to select their numbers at random, with probabilities chosen so that the average

score is better than with any other probabilities.

Program 1 has been written to demonstrate the principle.

In order to keep the program simple and avoid obscuring the principle I have used a simple method for adjusting the probabilities, which will not work correctly all the time, and I have omitted any checks to prevent the probabilities from becoming greater than 1 or less than 0.

The probabilities are set at 1/3 to begin with, and the subroutine beginning at line 500 selects a number 1, 2, or 3 with the appropriate probabilities. Lanes 140 and 150 call this subroutine to obtain the moves and in line 160 the score is found from the array \$f_i(j).

The subroutine at line 700 is used to update the probabilities and records the average scores to use in the updating, a(u) records the overall average scores and g(u) records average scores over 100 cames.

Line 705 calculates the adjustment to be made to the probability for the last row or column selected, and in order to keep the total probability always I, hall the adjustment is subtracted from each of the other two probabilities, in lines 740 and

In the games we have looked at 66 far, each player makes only one move, and the two players makes their moves simultaneously, without knowing the other players move in most real games, each player will have to make several moves, and the players make their moves alternately and know all the previous moves.

However, it is always possible to reduce an extended game to the simple form of one move for each player, although in the reduced form a "move" actually consists of a strategy for playing the whole

To see how the reduction can be performed, consider the game of begin with several piles of matchsticks or other objects, and at each turn a player may take any number of match-sticks from one pile, the winner boing the player who takes the last matchstick.

Let us take a very simple game of Nim, which begins with two piles, the first having one match and the second having two matches.

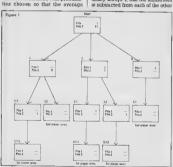
We can work through all the possible ways of playing this game, as shown in figure 1. The boxes show the position after each move and the numbers above the boxes

can be used to refer to the moves.

There are only three ways for the first player to play, because after the second player's move either the second player has won or there is only one match left and the first player has no choice for his second

There are four ways for the second player to play (these are plans for the whole game, not single moves) as follows;

- if player 1 makes move 1, make move 1, 1
- If player 1 makes move 2, make move 2, 1 If player 1 makes move 3, make
- move 3, I 2) If player 1 makes move 1, make
- move 1, 1 If player 1 makes move 2, make move 2, 2
- If player 1 makes move 3, make move 3, 1



BY TED BALL

PRACTICAL **PROGRAMMING**

3) If player 1 makes move 1, make move 1, 2

If player 2 makes move 2, make move 2, 1 If player 3 makes move 3, make

move 3. 1 4) If player 1 makes move 1, make

move 1, 2

If player 1 makes move 2, make move 2, 2

If player 1 makes move 3, make move 3.1 We can now make up a table

similar to those for the earlier games, with a 1 meaning a win for the first player and a -- I meaning a win for the second player.

	21	id pla	yer's	strate	gy
		1	2	3	- 4
lst	1	1	1	-1	-1
player's	2	1	1	1	1
strategy	3	-1	-1	-1	-3

Of course, it becomes more difficult to carry out the reduction of a game to a table when there are more moves, and this procedure is really of importance only in the mathematical theory, where it is convenient to be able to treat any game in a completely abstract fashion as just a rectangular array of

numbers.



1, the tree has three branches going of from the start position, If we look at the lowest entries under each branch we find, under branch 1 a win for player and a win for player 2. under branch 2 only wins for player 1, and under branch 3 only a win for player 2

It is clear from this that player 1 can always win by making move 2. For a more complicated example, consider figure 2 which shows part of a larger tree, using the same notation for labelling the moves or positions and with the numbers along the bottom showing which player has won.

If we look at the final positions following move I we see that in some cases player I wins and in some cases player 2 wns. However. by looking one level down we see that if player 2 makes move 1, 2 player 1 will win, while if player 2 makes move 1, 1 player 1 can win by making move 1, 1, 1

```
Act to acred detail to acred t
                                                                  p(2,3): DIM g(2):
                                                                                                                                                                                                                              DIN a
                                                                                                                                                                                                                                                                                                                 FOR
                                                                                                                                                                                                                                                                                                                                                    V=1
                                                                                                                                                                                                                                                                                                                                                                                    TD 3
                                                                                                                                                                                                                                                                                                               PRINT
NEXT
PRINT
NEXT
LET 9
                                                                                                                                                                                                                                                                                                                                                                  PIULVAL
                                                                                                                                                                                                                    8 (1.2)
                                                                                                                                                                                                                    0 (2,2)
                                                                                                                                                                                                                                                                                                                 NEXT U

LET 9=9+100

FOR 0=1 TO 2

LET 5(U)=5(U)+9(U)

LET 4(U)=5(U)/9

LET 9(U)=0

NEXT U

GO TO 110
                                                                                                                                                                                                                                                                                                                 GO TO
LET P=
LET P=
LET P=
LET P=
LET P=
NEXT P
                                                                                                                                                                                                                                                                                                                                                  U=1
r=RND
n=1 TO 2
p=p+p(v,n)
->p THEN LET U=U+1
                                  PRINT AT
                                LET SES!
                                                                                                                                                                                                                                                                                 700
705
710
715
                                                                                                                                                                                                                                                                                                                                                  g(u) = g(u) +s

g=.001#5#(s(u) - g(u) /x)

p(u, v) = p(u, v) +d

t=v+1
                                                                                                                                                                                              GB 5UB 70
                                                Update
                                                                                                                 100
                                                                                                                                                           rrobabili
                                                    T 3=-S
                                              ET 0=2. LET v=j: GO 508 70
Update cot probabilities
F x/100()INT (x/100) THEN
                                                                                                                                                                                            GD 5UB 70
                                                                                                                                                                                                                                                                                                                                                                              THEN LET 1=1
                    TOIF
                                                                                                                                                                                                                                                                                                                 LET p(U, k) = p(U, k) -d/2
LET p(U, k) = p(U, k) -d/2
LET p(U, k) = p(U, k) -d/2
    200 17 x 100 ( ) 18 ( ) 18 ( ) 20 ( ) 20 CL5 220 PRINT RT 3,0 ; 230 FOR U=1 TO 2
                                                                                                                                                                                                                                                                                   800 DATA -1,1,1,2,-2,2,3,3,-3
```





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LOOK MUM. NO WINGS

Along with about a quarter of a million other neople. I went to Farnborough last month to see the flying display. The planes and the displays can provide the inspiration for computer games and a wealth of ideas for graphics - both static and mobile. Being able to see the planes, whether in the static display or in the air, reinforces very strongly the importance of being able to see a complex object from many different points of view in order to be able to appreciate its overall shape and structure, and hence perhaps its function. Only the combination of several rather special views of a plane such as the Rockwell B-1 can reveal the way in which its shape has been designed to reduce its visibility to radar systems. This kind of experience should inspire anyone to polish up his program for displaying three-dimensional shapes and using hidden line removal.

The exhibition of aviation hardware is vast, and it is surprising although perhans it should not be -to come across the names of firms familiar to users of personal computers - Thorn-EMI to name one.

What is particularly striking is the number of manufacturers displaying computers and video displays. The graphics canabilities being demonstrated by various manufacturers were quite remarkable, particularly by comparison with what is available for video crames and personal computers.

The major applications for graphics were in instruments displays and simulation,

The most advanced instrument panel systems for aircraft cockpits all include a cathode-ray tube on which any individual instrument display can be shown as required. Raster-scan technology is naturally used to generate the display on the C.R.T., and the visual display is composed of dots, just as on a personal computer. However, liquid crystal display technology is used for the display surface.

Any changes to the display occurs, in human terms, instantaneously due to the combination of the display technology and the powerful controlling computer. Carefully designed visuals to indicate the artificial horizon or the weather pattern ahead are readily comprehensible to the layman, and must be invaluable to a trained pulot.

More immediately appealing are the visuals in flight simulators. One simulator being displayed by Redifon Simulators gave wide-angle flying requires detailed and realistic images as are technically and economically possible. A program for a personal computer could be highly effective while falling well short of the quality of flight simulator graphics.

In any event, the display must be of very high resolution with access to a full palette of colours all of which must be available in varying intensities. This implies that very large screen memories are necessary - larger than can be ad-



from the cockrut is provided for all the windows. The visuals representing airports in all conditions from daylight to darkness, and including in between, dusk and foggy conditions, are realistic and convincing.

If personal computers are to be able to display the sort of graphics used in flight simulators advances are needed in both hardware and software compared to what is generally available now. This begs the question of whether it is necessary to reproduce the graphics precisely on a personal computer.

To convince a pulot in a simulator to take his experience senously and make him believe he is actually

necessary to write programs generating such graphics is mostly contained within the companies involved in making the simulators.

The only program known to me that has graphics remotely approaching the level of flight simulators is a Jumbo jet landing program for the Atari. The Atari machines, incidentally are probably the only current personal computers able to display the necessary images

As all this graphics capability and technology already exists in the aviation world, there is no reason why it should not be borrowed and adapted by the games and computing sector, as long as it can be delivered at the right price.





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SANTA'S CHOICE

RADIO CONTROL

In the early days of radio controlled cers, the returns rata was nothing less than horrendous. This was due to many problems but was not beload by the customer having to pay out upwerda of £10 for hatteries and a licence to be able to play with the vehicle.

Initially, British suppliers (most imported the vehicles) rushed into this area end feiled to check quelity end many toy buyers dipped their toes in the water and ren like mad when the product was returned.

The buyers left most ranges alone during 1981 but having been convinced of the quality of ranges such as Corgi Inow manufactured in Japan) have once again slocked in dapth. A recherger unit end rechargable batteries are recommended. Programmable vehicles have not auffered from the same quality aspects. Unfortunately the number of items available is very few.

Bast Buys in this category ere: VW Turbo Rally Car by Corgi a realistic model with digital proportional stearing. It has five separate functions - forward, reverse, turn left, turn right and stop and costs between £33 and

The Honda Superbike by Corpi is enother reelistic model with detechebla rider: proportional steering with transmitter. Engine revving and running noises.

Electronic Toys that relied on the famous chie" were first Intinduced to the British Toy Trade in the Autumn of 1978

go - some hugely successful, the mejority completely the opposite There have been hend-held games, table top games and

Whilst these have been introduced, throughout the traditional Items have remained and I suppose could now be called stable

This has of course effected the toy industry and sales of electric trem eats and motor racing sets have auffaced, in fact collapsed Also traditional games have suffered as electronic loys (not including television games) have taken over 10% of the actual toy salas

What do you look for whan buying an electronic toy? Well lirstly, as with talevision gemax and cartridges, that is game play Also, and probably most importent, there must be a

Let's look at the varying types of electronic toys. There are mini arcade games (both hand-held and lable top varaions), basic radio controlled and programmable and learning side basically

Functions - forward, turn left. Jurn right end stop, Between £26 and £32.

Bigtrak by Milton Bradley must be the best known of all alectronic vehicles, having appeared on many talevision programmes that are concerned with the femous chin

It can be progremmed to travel forwards, beckwards, left, right, turn, spin or fire it's photon cannon.

Bought separately, the Bigtrek Transporter can be linked to the vehicle and programmed to haul loads and dump them on commend. Bigtrak is priced between

£27 and £40 and the trans porter costs from £14 to £20.

FAMILY FUN

The area of family challenge gemas is most confusing. You have items that were introduced in the first year of electronic toys and ramain strong sellers as they are now regarded as staples.

On the other hand you have the 'gimmicky' items that arrive with a lot of belly hoo and that is all that can ever be said of them - they heve 'died' just as quickly as thay arrived.

A common fallacy with toy menufacturers is that if you change a highly successful line and Introduce either en up-merket or down-market equivalent, success is gustanteed. This has also beppened to basic electronic family/chellenge games.

The prize winner was Perfection. Computer Perfection as a standerd shape sorter game has been e huge success for the last six years. Computer Perfection was added to the range in the US in 1979 and in the UK in 1980 and played besically the same way but alectronically, Unfortunately the Item lasted only two years in America and was finished (if it aver started!) after one year in the UK.

One exception has been Computer Battleships, Continued on Page 88.

which was accepted as the first ever electronic game in the LIK in 1978 and has sold well eyer since. When you think that the slandard geme still costs only around F7 and the electronic versinn is around £30-£35 it makes you wonder.

Best buys here ere, the Simon Family by Milton Bradley, Simon was one of the earliest items onto the merket place. It was followed by Super Simon and Pocket Simon, All three are still available and make up e most compact family range. The idea of the gema is to renest ofter 'Simon' (as in the child's game Simon Says) the colour sequences as mulckly as possible, if you are correct the lights and sounds go faster, if you are wrong Simon blows a respherry and it's back to square

Super Simon Includes several variations end costs between £30 and £40; Simon, between £1B and £30; end Pocket Simon £11



Pooket Simon

Dark Towar is the most recent title in Milton Bradley's electronic range. It is more than just a game - it's an experience. Record your moves on the computerised control centre ss you enter this exciting world of fantasy. First to travel around the board and storm tha Dark Tower is the winner. Price, between £29 and £40.





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The Real Contribute System

NTA'S CHOICE

continued from page 85

Master Challenga by Pater Pan is an electronic quiz Plug the Master Challenge computer into the quiz folder and dial eny of the 1001 questions. Select your enswer from one of four alternatives end the computer will tell you if you ere right or wrong. It comes complate with cartridge number 1 with 1001 general knowledge guestions and costs between £14 and £20 while Cartridge Ouiz books are priced between £3.50

Computar Battleship by Milton Bradley was the first electronic game brought into the UK. This is e game with 'live' action and sound. Hear the hunting of the sonar, the whistling of your missiles and the explosion of a direct hit. Claim victory with three 'whoops' on your destroyer's siren. Price between £24 and £40

TABLE-TOPPERS

In the beginning there were the hand-held games. Initial sales were tremendous but as all manufacturers, especially those in the Far East. jumped into this market there was tremendous overproduction and 'dumping' occurred, killing the market more or less overnight. The sport orienteted items were never a huge success and retailers, in an effort to reduce stocks, discontinued the sports lines, this made the other items look well overpriced

The hand-held game was followed by the table top version, firstly space war items and then arcade

games in a reduced form. Al the same time the miniature pocket games (credit card size and calculator size) entered the market, although once again we are going the way of hand-held with a lol of poor quality Far Eastern items pouring into the coun-

Make sure the graphics ere good (as television games cartridges) and the sound reproduction excellent. Games with varying skill levela are obviously better and the gemes that can be played using a meins adenter ere the most sensiand these games "eat" them).

make aure the bargain has all the above, as the cheap imports that have been dumped very rarely offer the Among the best buys in Costs from £22 to £30

This field are. Astro Wars by Grandstand. A table top game featuring on-screen colour with a special megnifying effect. Five lines of action with multi-coloured invaders and futuristic sounds just like the real arcade game, it has four levels of play and was voted best new toy of 1981 by the National Association of Toy Retailers. It costs between £22 and £30.

Caveman by Grandstand. A teble-top game with multicoloured display, Control the caveman stealing eggs from the dinosaur, whilst avoiding his ettack, features include dive bombing primilive birds, an axe attack, e volcano eruption and a fire breathing monster. Two levels of play and four lives. priced between £19 and £29

Taking you back in time is



Scrambta

Scramble by Grandstand is en obvious follow-up to ble (batteries ere expensive | Astro Wars, it is besed on the populer arcade game of the same name, and has e When buying, be careful multi-coloured display with new exciting sound effects Four separate phases including a meteorite attack, a space aquadron attack. flight through the black hole and a base station ettack

> Defender by Entax is a hand-held version of the Williams ercade game that an electronic aid has be-has long been an arcade come more or less standfavourite.

> Defend vour against many alien craft in a cally disappeared and Milfast-moving rocket ship, It features esteroids, allens, humanoids end a variety of hazerds as well as twin rader spotter screens, mullicolour display and sound for the adult as the child. effects. Price between £27 and £35.

Munchman by Grandstand is a table top geme with multi-coloured display. As with the hugely successful PacMan game you attack computer brein and electrothe monsters by eating tha power food to score points, Two skill levels end costing between £18 and £24

PecMan 2 by Entax is the hand-held version. A multicoloured game of strategy levela in the single player mode with two skill levels in the two player mode. It costs between £24 and £30.

Galaxy Invader 1000 by Computer Games Limited Major Morgan by Playskool (C.G.L.) is a hend-hold game is Milton Bradley's first anwith three skill levels and try into the pre-school elecgreat sound effects - score tronic market. To play simp

extra points shooting down the U.F.O. Price between £18 and £21

PLAY SCHOOL

Electronic technology is now used in so many areas that it is no surprise at all that the expansion of the 'chip in pre-school toys has occurred.

From a few years ego. when Taxas Instruments entered the market, the idea of a small child learning from ard. The early days of an plenet American voice have practiton Bradley have now entered the market

The educational toy is now being used in many schools and is as much fun

Among the Best Buys are: Speak and Spell by Texas Instruments. The first of the 'talking, toys, it also has built-in extra games, it is a fantastic learning aid with nic voice. Pronounces words letter by letter - rewarding when right, correcting when wrong. Priced between £33 and £43.

Little Professor by Texas Instruments is a child's first and tactical pursuit. Six skill | electronic learning aid. Now up-dated to a LCD display, il has thousends of malhs problems at four levels of difficulty. Priced between £9 and £12.



SANTA'S CHOICE

ly insert one of the sono l cards and touch the electronic keyboard according to the letters, numbers, colours or shapes shown, it is nricad between £7 and £12.

Maximus by Playskool is the computer compenies for learning and fun, Green "tick" lights up for correct enswer, red "cross" with a buzz when wrong, Plays time when all correct Four different activities - spell-

and music It costs between EB and £14.

ing, match-ups, counting You will notice from the wide range of price gaps. It pays you to shop around and find the best price.

JUST WATCH IT! A deluge of games for the Atari

VCS system is ready to descend on to the UK market. They are manufectured by a

host of new independent US soffware houses which numbered 17 at the last count

While the prospect of all these new games is an exciting one, it is necessary to add a word of warning Not ell of the games advertised have been properly

converted to the UK market The American television system is not compatible with the British system and any car-Indees produced over the Atlantic have to be converted.

Otherwise they will not offer es accurate end clearly defined graphics as they should, they may be slower and the colour usually suffers - in extreme cases, the certridge will not pro-

duce colonr et ell. The normal process to for an American company to make a deal with a UK distributor to release his certridges over here These are then converted and soon lind there way into the

Among the ranges correctly out over here ere: Parker, distnbuted by Paintey, imagic, distributed by Adam Imports, Appollo, distributed by Vulcan Electronics end Activision, by Computer Games Limited.

But cartniges that are available in the US can still be shipped over inconverted and sold

here



WE'RE PLAYING FOR TIME . . .

Pocket size game-watches | Beauty for example. are coming down in price and there will be an abundence to choose from this Christmas.

puts the number at 80 diffe. Simple games usually the best in this format. ranges. These can look very impressive with all sorts of lare. Popeye from C.G.L.

But the important thing to look for is that elusive addictive quality which prevents

you from picking the game A conservative estimate up "for just two minutes" Simple games usually work Among the best games

wierd creatures inhabiting which sets you the task of the screen. And some of the catching articles thrown by recent batches even have Olive Oyl, while Bluto tries storylines to back them up, to knock you into the har-Hanimex's Sleeping bour Price about £19.95

electricity supply stendards British television sets' which apply in the US and in Britein, American TV sets run oft 70 Hertz while British sets run off

of Sti Hortz This causas cartridges which have not been modified to roll continuously as if the TV set

were lautty In order to correct this certridges need to be fitted with a

stabilisation circuit to hold the picture stable Questions to esk your dealer technical reason why before you buy are 'Is it a

these cartridges are not com- | British stendard PAL cartridge" petible is due to the different or simply, "Is it compatible with

Best of all esk to see the game actually working before you purchase the cassens. System X is a hot topic in TV gaming Aten is still not telling its

public much about the mechine which is due to supersede the incredibly successful Atan VCS. We have managed to glean a picture Incht) and a faw facts about this machine which has earned itself the nicknems "the

SPACE WARP

A recent addition to the pocket l.c.d. games with time facility is the watch

with game facility.

Watches have always suffered from a high reject rate and obviously with the game facility added, rejection rates have increased Watches are now much bulkier but sales have gone well due to the novelty of the items

Again, space games are among the most popular with game watch fans Ones to watch out for here are Game Time by C.G.L. The Space Invader type is by for the best seller and can be played with or without sound affects on the l.c.d playing area. Cost, between £20 and £30.

Remote control roysticks are one feature on the new system and it will also have a trackerball control

There will be 12 certridges in the Initial range, including sports and familiar arcade titles and the prophics will be similar in detail to the cartodoes produced for the 400/800 computers

Among the graphical folls will be clouds of dust produced by runners in the sports cartindges. And it is remoured that there will be e plug-in attachment which will allow the system to run existing Ateri VCS cartridges,

Beating the Atari System X to our selves will be Colacovisuns's new TV names centre due out early in 1983

It is being marketed in this country by Ideal and is promising e big improvement in games centra graphics.



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SANTA'S CHOICE

Continued from page 89 OPENING MOVE

What questions should you ask when buying a dedicated chess machine?

Most important is speed of response, if you want a machine which plays as fast as you do: you will find It irntating to sit end watch it struggling over an obvious

Ask for a shop demonstration, not just a talk through the instruction booklet; try and find out how the mechine responds to an opening variation and how easy it is to set up a position

on the board. For modals destined to spend long periods away from power points, ask how long the betteries lest - two hours is of little use to anyone. Examine the displey or the pieces to see if you can distinguish them easily, find out about a guarantae two years is whet you should expect for the powerful mechines. Remember these mechines

still have a 2.4% failure rate. If book openings ere im-- ask how many the computer cen play and see if you can make anything of the instruction manual. Then start checking the price.

CHESS CHAMPS...

The Sciays Mark VI Chass the Champion came into the machine, over its home country last month boasting computer rivals. All the top end pleys a tight game with book openings the emphasia on strong pawn centres

At £210 for the machine with LCD chess board disstill have any use for a chess-ctavin dedicated

With some axtramely powerful chess programs owning chess player to scott at the more-expensive dedicated machines. Sergon II may be more than a match for most of us but Terry Pratt looks at he current state-of-the art of consummr chess

play or another £125 if you want to attach it to a sensory board, it does not compare favourably with a Sergon il proprem on your home

It would best Sargon II in a straight contest, elthough - unlike its Mark V predecessor - it has not been specially designed to defeat other machines.

It was one of those inavitable ironias of the computer portant to you - if you take age that machines designed chass seriously they will be to play against humans first had to prove themselves egainst other machines. The Mark V did this by going out

of "book" as agon as possible, and so throwing its opponent back on to its own resources early in the game. "Book" opanings are one of the mein edvantages of dedicated chess

a brand new program which class chess machines have a excells at Sicilian Defence huge repertoire of stored As casual chess enthu-

stasts are more likely to study the game than actu-

have a strong knowledge of the openings that top players use and how to progress to a reasonably even middla game in many of them.

They inveriebly have devalopad their own favourites and a computer which will take tham down thasa familier paths, responding quickly because it is just pulling moves out of memory, will enable the player to explore and examine his favourite openings further.

One of the Scisys' main rivals at this level is the Sensory 9, from the challenger range, distributed over here by Computer Games

Limited. St accents a library of mod-

ally playing it, they usually the dedicated mechine have? Well a outck look through its extras will show a few These include: Analysis, where it gives your best

move and prints out a numerical comment on the state of the gema: Comment, where it will tell you dis-arming things "mate-in-four"; Drew, it may accept your offer of a draw: in problem mode it will aift through the comhinations for the best moves; it can keep 12 simultaneous games in memory

It can be educational. The Scisvs comes with a booklet size set of instructions and Vulcan Electronics, which markets the game in the UK



ules programmed to keep it up to date with the letest innovations of computer cheas and stora various book openings - the first two cartridges gives an effective 27,000 opening

moves for its owner. The machine costs £149.95 and its cartridges cost from F59.95 Sounds like a good idea

when you consider how chess propramming is constantly been updated and experimented on. Unfortunately, although the programmers themselves are gaturally excited by tiny improvements in the computer's play, the benefit as seen from the usual chess plever's point of view are negligible. The fact is that computers, without taking in ordinate amounts of time. or being atteched to walls of meinframe memory, ere still groping just below top club player standard end will be

What other benefits does

for some time.

claim it is very educational. It is. In auto mode it will happily play itself end display its profound knowledge of openings with a tendency

to veer towards the Sicilian. Computer Games' Voice Sansory Challanger costs £199.95 and will also keep you eware of what is going on with phrases like: "Your move" end "Mate in two" which cen be irritating end is probably the closest eny chess machine will ever get to pamesmanship.

Of course these models plug into the meins and are hardly portable in the same way as the old travelling chose cote

The Hanimex costs £30 and is e marvellous buy for the keen chass beginner. Also its batteries last e very impressive 50 hours.

The Mini-Sensory Chass Challenger costs £49.95 and looks just like the old travelling sets, the Scisis Executive costs £69.95.



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Mis Margaret Thatcher You have just five years until the next general election in which time you must convince the lickle electorete that you will bathe best bat for the following five years The computar provides information on

the corrant rates of inflation, naersployment, doller exchange, and the belance of payments, as well as datails of current wholesale prices, avarage income and the ratail price index

You have a number of policies at your disposal as you wrestle with the gloomy downward spiral in the country's economic performance Vanous forms of taxetion can be tinkarad with in an attempt to reduce infiation and nnemployment. As if the country's economic problems

were not enough for the hero of one game to worry about, there are also a number of nnforesaan catastrophes which could npset public opinion anviime

Aftar live bridgets, or balore, if things have gone disastronsly wrong, a general alaction lake place. Your success in this

the scraen Above them is a row of wad-

dling dncks opaning and closing thair beaks. Next is a row of hopping bring

After this things begin to get a little more

difficult with ravolving faces changing from happy to sad. Hit a sad one and another

when bit will leverse the flow of fair ground

invaders. The top row of diamonds are

valneble targets worth bonus bollats

benny rabbit will eppaar The next line is a low of targets which

rabbits

will depend on your afforts previously if

yon win, you get to run the country for a forther five years - although you may look on this as more of a prinishment than a

The gama may be good training for future Chancellors of the Exchagnar or to shut-np that drunk in the pnb who always claims that the country's problems would be over if the government would abolish at taxas, but I found it far from addictive and somewhat simplistic I leaf ganarally that the game has little appeal.

Ronning on a BBC Model B, G B. Ltd is from Barkshira-besed S. W. Hessall Software end costs £5.95 Gatting started 8

Walna 5 Playability 5

ELEPHANTS.. It's all the fun of the fan in this armsing SHOOTING ARCADE

naw arceda type game for the 16K Atan computars. The idea of Shooting Arcade is quite On clearing the entire screen, the player simple - all you have to do is shool all the is conficinted by a huge bear (wearing a targets below your emmonition roos ont. hat) which dodges from left to right when At the start of the game, you are con-

fronted with six rows of different targets The game uses high resolution coloni which cuss-closs in light of you. graphics making good use of the machine's The first row consists of a row of pink coloni and graphical capabilities elaphants which stomp their way across

Despite the game's excallent graphics i found the game rather numagenative and the sound affects were particularly disappointmo

Complate with six skill lavels Shooting Arcada is a reasonable, though fai-fromontstanding varsion of this type of game

The game inns on an Aten 400 and is available from London based Computar Magic at £20 50

· Gatting started 9 Walna 4

Playability 4

DIWARE SOFTWARE SOITWARE SOITWARE SOIT A SOI

NEVER MIND THE QUALITY

if you think that four games on one side of a cassette tape sounds too good to be true then you are proved right by Gemes Pack 3. Mind The Mateors chellenges you to

Mind The Mateors chellenges you to steer your spaceship salely through a meteor storm. Trouble is the meteors are not meteors at all but simply a number of stationary estarisks dotted around a ractangle which accupies exactly helf of the screan.

The spaceship is pratty unimpressive too Just a tiny little arrow This game was or asky I mastered it on my fifth go and found it so boring from their on that I quickly loaded the second game on the tape.— Daylight Robbery — to see if it was eny better.

Alas no The game offers an interesting data — you have to raid as many soles as a scaping through the cash — ascaping through the maze exit, before the ascaping through the maze exit, before the agrand can grap you. As with Mind Tha Meteors the game was spoil by hopeless graphics. The sales are dollar signet, you are represented by the letter 0, the guard by an I, and as with all four games there were no sound effects. This was also a frustratingly slow cerns to play.

frustratingly slow geme to play.

Battleships is a good game, but I did not feel that this computer version was any

GAMES PACK 3

batter than playing the game with a pen and paper. The submannes, destroyers, crusers, and carnars were all represented by the latters 'S',D',C',A' — a bit disappointing considering the exciting consideration of e submanne on the cassette inset.

The final game on this cassette wes Invisible Inviades which enables you to draw long lines of destends across the acraen. Again the graphics are disappoint in many pure graphics are disappoint in many pure graphics of the second which is just as well really, for it it had been visible I laid size it would have been an astrick to.

Games 3 is just one of a series of four games packs from ICL for the Sinclair Spectium The cassade is available from larger branchas of W. H. Smith at £4.95 if the others are all like this then games packs one to four certainly won't be en my shooping list this Christmas.

- Getting started 7.
- Valua 2. ● Playability 1

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I wouldn't mind if the thing was at lasst consistant, but a two word answar wes givan as wong if the answer in the data base was one word, le Marquis of Queensbury; wrong, Queensbury; nght. Ply Fishing, wong, Eshing, oght.

But just when you think you have cracked it and answer Weismuller for the first Tazzan you lind you heve been double crossed and the correct answer is Johnny Weismuller



I am not sure how many questions there are on each data tape but after a while like gets boring seeing the seme questions eppear time and time egain when picked at random

BBC Masfermind runs on a Vic 20 with a 8K or 16K ram pack expansion. It is in the shops now at £9.95 for the basic package plns £1.99 for spacialist subject tapes.

- Gatting started 7
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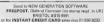
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